

Exhibit A

Part One

523

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

UNITED STATES OF AMERICA,)	
)	
Plaintiff,)	Civil Action No. 99-005 (SLR)
)	
vs.)	
)	
DENTSPLY INTERNATIONAL, INC.,)	FILED UNDER SEAL
)	
Defendant.)	
)	

**UNITED STATES' PROPOSED FINDINGS OF FACT
AND CONCLUSIONS OF LAW**

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INTRODUCTION

As set forth in the following Proposed Findings of Fact and Conclusions of Law, Dentsply has unlawfully maintained its monopoly power in the prefabricated artificial tooth market in the United States in violation of Section 2 of the Sherman Act, 15 U.S.C. § 2, and unreasonably restrained competition under Section 1 of the Sherman Act, 15 U.S.C. § 1, and Section 3 of the Clayton Act, 15 U.S.C. § 14.

Since at least 1976, if not before, Dentsply has terminated, or threatened to terminate, dealers selling Dentsply's Trubyte teeth if they add a competing brand. In 1993, this exclusionary policy was memorialized as Dealer Criterion 6, one of the two practices challenged in this case. The other is Dentsply's agreements with new dealers to drop some, or all, competing tooth brands in order to obtain Dentsply's Trubyte line in the first place. Proposed Findings of Fact ("PFF") ¶¶ 37-43.

Through this exclusionary conduct, Dentsply has foreclosed its closest competitors from approximately 80% of the laboratory dealer outlets in the country. PFF ¶¶ 242-48. A network of dental lab dealers is necessary in order to compete effectively in the market. PFF ¶¶ 61-167. Dentsply's conduct has maintained its monopoly power, reduced competition, and increased prices. Indeed, the record shows, and Dentsply concedes, that in the absence of this challenged conduct:

- Dealers would add competing brands of teeth (PFF ¶ 269);
- Dentsply would lose market share, as labs begin buying more of those competing brands (PFF ¶ 266);
- Prices will fall, to both dealers and laboratories (PFF ¶¶ 275-80); and

- Competition will increase, as Dentsply tries to regain its lost market share and its rivals increase their promotional activity (PFF ¶ 282).

Given these conceded effects, Dentsply bears a heavy burden to come forward with a nonpretextual, procompetitive rationale for its conduct. It has not done so here. The theoretical justification offered by Dentsply's expert, Professor Howard Marvel, is a pretext for the real reason that is expressed quite clearly in contemporaneous evidence: to "block competitive distribution points"; "tie-up dealers"; prevent competitors from gaining a "foothold" in the U.S. market; and to posed by dealers selling the teeth of Dentsply's primary competitors. PFF ¶¶ 231-41.

The United States' expert, Dr. David Reitman has spent five years studying this industry and reviewing the extensive evidentiary record from this case and the investigation leading up to it — including over 100 deposition transcripts, 20-25 interviews of market participants, 10 boxes of documents, and various types of market data, as well as visiting facilities of firms at each level of distribution. PFF ¶ 285. He has concluded that the substantial anticompetitive effects of Dentsply's conduct outweigh any possible procompetitive benefits. PFF ¶ 329. The net effect on competition and consumers is clear. Competition has been reduced, and consumers have had fewer choices and paid higher prices. PFF ¶¶ 263-84.

The evidence on five key issues in the case -- monopoly power, foreclosure, agreement, effects, and Dentsply's justifications -- is summarized below.

Monopoly power. Dentsply cannot seriously dispute that its market share in the artificial tooth market is approximately 75%-80%, a share sufficiently high to give rise to a

presumption of monopoly power. Market share surveys commissioned by Sam Thumim, Dentsply's own Manager of Market Research who testified during the government's case and was not cross examined by Dentsply, show that its share has been roughly 80% for at least the past 10 years. PFF ¶¶ 169-72.

Dentsply has also controlled price in the market. By successfully excluding its closest competitors from the dealers necessary to compete effectively, it has been able to charge monopoly prices. According to William Turner, Senior Product Manager for Trubyte's tooth products for almost 10 years, and Steve Jenson, the current General Manager of the Trubyte Division, Dentsply's high prices have acted as a "price umbrella," under which other companies compete in the marketplace. PFF ¶¶ 173-78.

A particularly telling example of Dentsply's monopoly power occurred during a several-year period in the 1990's, prior to Dentsply's introduction of its Portrait tooth line. Its Bioform premium teeth were a poor match to the popular Vita shade guide and, apart from their shading, these teeth were considered aesthetically inferior in other respects to the teeth made by both Vita and Ivoclar. Dentsply's teeth were also significantly higher priced. Yet, it was still able to maintain its market share during this period. When labs received a prescription for a Vita-shaded tooth, they substituted the higher priced, poorly-matched Dentsply tooth in 72% of the cases. Not surprisingly, several dealers tried to add the Vita tooth line in response to the requests of their lab customers. Yet Dentsply consistently enforced Dealer Criterion 6, and successfully blocked Vita from each of these dealers. PFF ¶¶ 191-211.

At trial, Dentsply touted the introduction of its Portrait teeth as evidence that it is not a monopolist. Yet the evidence shows that Dentsply was receiving complaints, from both dealers and labs, about the poor aesthetics and shading of its teeth for at least a few years. It was late in addressing the problem. During the time in which Dentsply was working to develop its Portrait line, it could have competed on the merits by permitting dealers to decide freely what tooth lines they should carry. Instead, it threatened those dealers with the loss of their Trubyte tooth business, convincing them not to add the aesthetically superior and less expensive teeth requested by their lab customers. PFF ¶¶ 191-211.

Dentsply's monopoly power is protected by the high barrier to successful entry and expansion created by its exclusionary conduct. Dentsply's primary competitors, Vita and Ivoclar, have competed in the market for over 20 years. Despite substantial efforts, their market shares are stuck in the mid-single digits. Dentsply's conduct has completely excluded at least one firm from the market, delayed the entry of another, and significantly limited the success of two firms, Heraeus Kulzer and Davis Schottlander, that have just recently entered. PFF ¶¶ 212-29.

Dentsply has tried to make much of the unimpressive entry of these two firms, probably because it is the only evidence of entry it could find. Yet the entrants' experience confirms that it is virtually impossible for a new entrant to find dealer distribution in the face of Dentsply's exclusive dealing agreements, and that it is difficult to achieve any kind of success without dealer distribution. If actions speak louder than words, then Dentsply's lack of any reaction -- in terms of its pricing or otherwise -- to this recent entry speaks volumes.

Dentsply's monopoly power is far from being eroded by either of these entrants. PFF ¶¶ 216-19.¹

Foreclosure. Dentsply's exclusive dealing agreements have done what they were intended to do — "tie-up" the "key dealers" selling Trubyte teeth. Dr. Reitman's analysis shows that Dentsply has foreclosed its competitors from approximately 80% of the laboratory dealer outlets in the country. PFF ¶¶ 242-48. Dentsply did not offer into evidence their own foreclosure rate analysis. Instead, they argued that because direct sales to labs are possible, Dr. Reitman should not have focused on dealer outlets when measuring foreclosure.

Dr. Reitman's methodology was proper given the abundant evidence that dealer distribution is necessary for a tooth supplier to be an effective competitor in this market. That evidence comes from numerous sources: from the dealers, who described the valuable services they provide; from the labs, in the form of Dr. Jerry Wind's survey of dental laboratories; and from the rival tooth manufacturers, that have tried repeatedly to develop a dealer network. Most significantly, that evidence comes also from Dentsply, which has a diverse dealer network of national, regional and local dealers collectively maintaining Trubyte tooth stocks in over 100 locations throughout the country.

Dealers are important in this industry, to Dentsply and to its

¹ This same evidence of "monopoly power" more than suffices to establish market power in support of the conclusion that Dentsply has violated Section 1 of the Sherman Act and Section 3 of the Clayton Act. Indeed, Dentsply's own expert, Professor Marvel, concedes that Dentsply has "substantial market power." PFF ¶ 230(a).

competitors alike. That is why Dentsply imposed and has consistently enforced Dealer Criterion 6, and that is why it is defending it in this litigation. PFF ¶¶ 61-167.

Agreement. When Dentsply has recognized new dealers, it has explicitly required the dealer to agree to drop some or all competing tooth brands -- particularly, those sold by its closest competitors, Vita and Ivoclar. Dentsply cannot seriously dispute that these are "agreements" for purposes of Section 1 of the Sherman Act and Section 3 of the Clayton Act. PFF ¶¶ 293.

Dealer Criterion 6 also constitutes an agreement. It is not a unilateral policy that is announced and automatically enforced. Dentsply has engaged in negotiations — at times, lengthy negotiations — with dealers to persuade them not to add competitive brands. It has coerced dealers to agree not only by threatening them with the loss of the Trubyte tooth business, but with the loss of other product lines as well. In the case of Frink Dental, Dentsply sent three high-level executives, including its chief executive officer, to Illinois to try to talk Frink's owner, Tom Cavanaugh out of adding the Ivoclar line. When he did so anyway, Dentsply terminated him not only as a tooth dealer but as a Trubyte merchandise dealer as well. Dentsply then threatened him with the loss of other business, until Mr. Cavanaugh finally relented and dropped the Ivoclar line. Dentsply has done what it takes to make sure its dealers agree not to add competing tooth brands. PFF ¶¶ 287-92.

Effects. Dentsply's monopoly power and the very high foreclosure rate create a powerful presumption of anticompetitive effects. Here, there is also ample direct evidence of harm to competition and consumers. Dentsply's concession that it would lose sales and market share without Dealer Criterion 6 means that consumer preferences in today's market

are being frustrated. Some labs that want to buy the teeth of Vita, Ivoclar, and others, are not buying them because those teeth are not available through the same dealers selling Trubyte teeth. PFF ¶¶ 265-74.

There is no dispute that prices will fall in the absence of Dentsply exclusive dealing. Dentsply and its expert Professor Marvel concede that. The testimony of Dentsply's competitors showed that they price more aggressively in areas in which they have better dealer distribution, and would lower their prices even further if they developed a better dealer network. Dr. Reitman's analysis of the Wind Survey data confirmed and quantified this price effect, concluding that premium tooth prices would fall by approximately 4%-5% in just three months. Additional, long-term decreases are likely as well. PFF ¶¶ 275-80.

Consumers will benefit not only from these lower prices but from the greater competition that will result if Dentsply's conduct is enjoined. On a level-playing field, both Dentsply and its rivals will compete harder. The competitors testified that they will promote their products more vigorously. Likewise, Dentsply will try harder to regain its lost market share, with any number of procompetitive tactics — such as more research and development, more sales and marketing expenditures, or a bigger sales force. PFF ¶¶ 282.

Dentsply's business justifications. Professor Marvel's free riding justification is pretextual and not supported by the facts. As noted above, the real reason Dentsply uses exclusive dealing is to exclude its competitors from competing effectively. Professor Marvel claims that Dentsply uses exclusive dealing, and charges higher prices, so it can advertise its teeth more. Yet the evidence shows that Dentsply will engage in more, not less, promotion if it is no longer able to practice exclusive dealing. PFF ¶¶ 373-77. The evidence also

undermines certain necessary conditions that must apply for Professor Marvel's free riding theory to work. One is that dealers must steer lab orders for Dentsply teeth to other brands through the use of what Professor Marvel calls "bait and switch" tactics. There is no evidence that dealers in this industry do that. PFF ¶¶ 343-49.

Professor Marvel's theory is just that -- a theory of an expert retained in litigation. It is not grounded in, or supported by, the facts of this case. Dr. Reitman, however, who began investigating the issue of procompetitive justifications five years ago, consistently cited the detailed factual support for his conclusions that the procompetitive benefits, if there are any, are negligible and outweighed by the significant anticompetitive harm that has been demonstrated. PFF ¶¶ 328-29.

PROPOSED FINDINGS OF FACT

I. Background on the industry and litigation.

A. Prefabricated artificial teeth and their use in dentures.

1. The relevant product market for purposes of this case is the sale of prefabricated artificial teeth in the United States. GX 445 at 6-8.²

2. Artificial teeth today are manufactured in either porcelain or plastic. In order to match the different characteristics of a person's mouth, they are made in thousands of different shades, sizes and shapes. Teeth are made in different grades of quality, commonly known as "premium," "mid-line," "economy," and "sub-economy." Weinstock Tr. 81-84; Reitman Tr. 1479-80.

² The trial transcript will be cited in this memorandum as "Tr.," preceded by the name of the witness providing the testimony and followed by the page number. Government exhibits will be cited as "GX," and defendant exhibits will be cited as "DX."

3. Artificial teeth are manufactured for use in dentures. A denture is a removable prosthetic device comprised of artificial teeth fixed in an acrylic or other base material to replace some or all of a person's natural teeth. D.I. 368, Exh. 1, Stipulation 11.

4. "Removable" appliances are ones that patients can remove from their mouth themselves, clean them and place them back in. Ryan Tr. 1206. This can include either full and partial dentures. Weinstock Tr. 85.

5. "Fixed" appliances, by contrast, include crowns, bridges, and implants. A crown is a single, individual tooth restoration. A bridge is a restoration of at least three units bridging a gap of at least one missing tooth. An implant case is where a device is actually screwed into the bone. Weinstock Tr. 85-86.

6. The term "combination case" refers to the use of both fixed and removable appliances. Ryan Tr. 1208.

7. Dental laboratories purchase almost all of the artificial teeth sold in the United States and use the teeth to make dentures. Labs buy artificial teeth on cards containing six (for anteriors) or eight (for posteriors) teeth. A full denture, *i.e.*, one that replaces all natural teeth, requires 28 teeth from a total of four tooth cards. When fabricating a partial denture, a dental lab may only use a portion of the teeth on a card. The remaining teeth are the tooth cards known as "broken sets." D.I. 368, Exh. 1, Stipulations 13-16.

8. Labs fabricate dentures according to the prescription, impression and any other information provided to the lab by the dentist. Weinstock Tr. 81; Ryan Tr. 1211-17 (describing process by which denture is made). The process of fabricating a new denture

involves “a rather large number of steps,” and any given denture case goes back and forth between the lab and the dentist several times. Ryan Tr. 1211.

9. The market demands that this process move quickly as possible. When a patient is waiting for a new denture to be fabricated, or an existing one repaired, they want the work done as quickly as possible. Reitman Tr. 1480-81 (“there is someone sitting there waiting, a patient waiting for their denture to come back, not wanting a lengthy process”); Weinstock Tr. 90 (“they are anticipating something that fits better, chews better, gets rid of pain. They want it as fast as possible”); Ryan Tr. 1225 (denture patients often in pain or undergoing major life event requiring denture work); Armstrong Tr. 2369 (patients value fast service particularly when losing anterior teeth).

10. There are four distinctive characteristics of artificial teeth that bear on how they are distributed: (1) teeth are available in thousands of different mould and shade combinations; (2) they are ordered frequently, generally daily; (3) labs, dentists and patients value quick turnaround times in obtaining teeth; and (4) the handling of restocking and returns of teeth is a very labor-intensive effort. Reitman Tr. 1479-81; GX. 364-A.³

B. The distribution of artificial teeth.

1. Manufacturers

a. Dentsply International

11. Dentsply International, Inc. is a Delaware for-profit corporation headquartered in York, Pennsylvania. Dentsply transacts business in, and is found within, the District of

³ GX 364-A is identified in the trial transcript as GX 365, however, it was subsequently renumbered.

Delaware within the meaning of 15 U.S.C. § 22. Dentsply's business activities that are the subject of this lawsuit are within the flow of, and substantially affect, interstate trade and commerce. D.I. 368, Exh. 1, Stipulations 1, 4-5.

12. Dentsply's artificial teeth are developed, designed, sold, and marketed by its Trubyte Division, located in York, Pennsylvania. Dentsply manufactures artificial teeth in the premium (under the names "Portrait," "TruBlend," "Bioblend" and "Bioform"), mid-range ("Biotone") and economy ("New Hue" and "Classic") segments. D.I. 368, Exh. 1, Stipulations 8-9; Jenson Tr. 2108, 2116-17. Dentsply does not compete in the sub-economy tooth segment. Jenson Tr. 2250-51.

13. Dentsply sells its artificial teeth exclusively to independent dealers. Dentsply does not own the dealers it has authorized to distribute Trubyte teeth. D.I. 368, Exh. 1, Stipulations 17-18.

14. Dentsply has been the dominant tooth manufacturer in the United States market for a very long time. Its current market share is between 75% and 80%. Reitman Tr. 1471-72;

15. In 2001, Dentsply's gross tooth sales to dealers were Net sales, taking into account broken sets and other tooth returns, totaled DX 1650; Jenson Tr. 2253. Dentsply's Trubyte Division also sells lab merchandise products. Teeth, however, represent approximately of the division's revenue. Jenson Tr. 2255-56.

b. Ivoclar Vivadent, Inc.

16. Ivoclar Vivadent, Inc., headquartered in Liechtenstein, is a manufacturer and marketer of dental restorative materials, including artificial teeth. Ganley Tr. 982-83. Its U.S. subsidiary, Ivoclar Vivadent, Inc. ("Ivoclar"), is based in Amherst, New York and is responsible for marketing Ivoclar teeth in the United States market. Ganley Tr. 982-83. Its president is Robert Ganley. He has been involved in the sale of Ivoclar teeth in the United States market since 1986. Ganley Tr. 983.

17. Ivoclar sells a number of different lines of artificial teeth. Among its premium plastic teeth are the Antaris and Postaris teeth, which were introduced by Ivoclar in the 1990s and made of a material that is more resistant to wear. Ganley Tr. 984, 1013.

18. Ivoclar is one of Dentsply's two primary competitors in the tooth market. Clark Tr. 2683-84; Miles Tr. 3461, 3494; Jenson Tr. 2249-50. Although it is Dentsply's closest competitor in terms of tooth sales, Ivoclar's market share, at 5%, is 15 times smaller than Dentsply's market share. Reitman Tr. 1472.

c. Vita Zahnfabrik; Vident

19. Vita Zahnfabrik is a German manufacturer of artificial teeth. Whitehill Tr. 221. Vita Zahnfabrik sells teeth in the United States through an affiliated importer and distributor named Vident. Whitehill Tr. 288-89. Vident is a closely held California corporation owned, in part, by the same family that owns Vita Zahnfabrik. Whitehill Tr. 222. Vident's president is Wayne Whitehill, who has been involved in the sale of Vita teeth since they were first imported into the United States market in the 1970's. Whitehill Tr. 221, 223.

20. Vident sells both porcelain and plastic (or "resin") teeth in the United States. The brand name of the resin teeth is "Vitapan." Whitehill Tr. 225.

21. Vident has been the entity responsible for marketing the Vita Classical Shade Guide in the United States market. Whitehill Tr. 231-32. A shade guide is used by dentists to match the shade of an artificial tooth (or crown, bridge, etc.) with the shade of a patient's natural dentition. Whitehill Tr. 230-31. The Vita Classical Shade Guide is the most popular shade guide in the market, used by approximately of the dentists in the United States. Whitehill Tr. 231-32.

22. Vita, through its importer Vident, is the other primary competitor to Dentsply in the United States tooth market. Clark Tr. 2683-84; Miles Tr. 3461, 3494; Jenson Tr. 2249-50. Vita's market share is approximately 2%-3%. Reitman Tr. 1472;

d. Myerson LLC

23. Myerson LLC is a tooth manufacturer based in Chicago, Illinois selling premium (Myerson, Universal, Swissedent), economy (Kenson), and midline teeth. At one time, Myerson was a free-standing division within the Austenal Corporation. In January 2002, Dentsply acquired Austenal, and Myerson became a wholly separate company. Myerson's president and chief operating officer is James Swartout, who has been with the company (and, before that, Austenal) since 1994. Swartout Tr. 1291-95.

24. Myerson teeth have been sold in the United States market since the company was founded in Cambridge, Massachusetts in 1917. Dr. Myerson was a Professor of Dentistry at Harvard Dental School, and hand carved almost all of Myerson's teeth. Myerson was a

pioneer in cross-linked resin technology and in the move from using porcelain to plastic to manufacture artificial teeth. Swartout Tr. 1293, 1295.

25. Myerson's market share is approximately 3%. Reitman Tr. 1472.

e. Dentsply's other competitors

26. American Tooth Industries ("ATI") sells teeth under the Imperial and Justi brand names. ATI's share is roughly 2%. Reitman Tr. 1472.

27. Universal is a diminishing competitor in the market. Jenson Tr. 2250 (level of activity "certainly trending downward"). In the fall of 2001, it sold some of its tooth lines to Myerson. Swartout Tr. 1295, 1340-42. Its market share is currently between 1% and 2%. Reitman Tr. 1472.

28. Heraeus Kulzer began selling its mid-line teeth, called "Jeldent Basic," in the United States market two years ago. Becker Tr. at 1817-1818. Its market share is about 1%. Reitman Tr. 1472; Marvel Tr. 3726.

29. Davis Schottlander & Davis Ltd. is an English company that sells a premium, Vita-shaded tooth under the brand name "Enigma." It is distributed in the United States by Dillon Company, Inc, which is also referred to as Leach & Dillon. Dillon Tr. at 4079-80, 4086, 4088. The market share of Enigma teeth is negligible. Reitman Tr. 1472

2. Laboratory dealers

30. Dental laboratory dealers, like the ones to which Dentsply sells its teeth, are dealers carrying the full range of products that dental labs use. Weinstock Tr. 101-02; Reitman Tr. 1482-83. These products can include artificial teeth, metals, porcelains, teeth,

acrylics, waxes, and anything else necessary to fabricate fixed or removable restorations.

Weinstock Tr. 93.

31. Lab dealers that sell teeth vary in the size and scope of their operations. In general, there are three main types of tooth dealers — national, regional, and local.

(a) National tooth dealers, such as Zahn Dental and Patterson Dental, sell teeth nationwide through a network of tooth stock inventories scattered throughout the country. Whitehill Tr. 244-45.

(b) Regional tooth dealers are those that are particularly strong in certain regions of the country and have multiple tooth stocks scattered throughout the states in which they sell. Whitehill Tr. 245.

(c) Local, specialty tooth dealers typically operate within a single state or single city. They almost always have just one tooth stock. They are much smaller organizations than national or regional dealers, carry a narrower range of products, and have fewer resources such as catalogues and sales representatives. Whitehill Tr. 245-46; Reitman Tr. 1512.

32. Due to the thousands of mould and shade combinations of artificial teeth, most tooth dealers carry large inventories of teeth. Weinstock Tr. 82; Reitman Tr. 1481. A dealer's "tooth counter" is a separate part of a laboratory dealer dedicated almost entirely to handling teeth. Weinstock Tr. 104-05; Reitman 1481-82. Tooth counters are extremely labor-intensive operations, requiring the employment of friendly, detail-oriented customer service personnel. Weinstock Tr. 126-27; Reitman Tr. 1479.

3. Dental laboratories

33. There are approximately 16,000 labs that perform fixed and/or removable work in the United States. Weinstock Tr. 86. Of these, approximately 7,000 fabricate dentures. Weinstock Tr. 86; Jenson Tr. 2247; Reitman Tr. 1484.

34. The 7,000 labs that fabricate dentures are a very heterogeneous group. Reitman Tr. 1484; Jenson Tr. 2247 ("highly fragmented" in size).

(a) The large labs are those employing 25 or more denture technicians. There are only approximately 500 labs of this size (or only 7% of the total) in the country. Weinstock Tr. 88.

(b) The mid-size labs employ between four and 25 technicians. There are approximately 700-800 mid-size labs (or 11% of the total) in the country. Weinstock Tr. 88.

(c) The remaining 82% are small labs, defined as labs employing four or fewer technicians. Weinstock Tr. 88.

See also Jenson Tr. 2247

(approximately 80% of labs employ 1-5 people); Mariacher Tr. 2895 (75% of labs employ 3-5 people);

35. Denture labs compete with each other on the basis of price and service. Weinstock Tr. 89. Patients and dentists value fast service, particularly in the case of lost or damaged dentures. Weinstock Tr. 89; Reitman Tr. 1480-81.

36. Labs are the relevant consumer for prefabricated artificial teeth because they choose the brand of tooth used in a denture in the majority of cases. Pohl Tr. 1911; Reitman Tr. 3931-32. Ryan Tr. 1210, 1215-16, 1220-22 (dentists usually provide only a shade);

Armstrong Tr. 2332-33 (only 10% of dentist prescriptions specify tooth brand); Jenson Tr. 2141 (same).

II. Dentsply's exclusionary conduct challenged in this case.

37. This case challenges Dentsply's exclusionary conduct that has unlawfully maintained its monopoly and substantially restrained competition in the artificial tooth market. Under scrutiny here are two aspects of Dentsply's exclusionary policies: (i) its agreements with dealers that they will lose their Trubyte tooth business if they add a competing brand of teeth; and (ii) its agreements with new dealers to drop some, or all, competing tooth brands in order to obtain the Trubyte line in the first place. Reitman Tr. 1521-23.

A. Dealer Criterion 6

38. Since at least 1976, if not before, Dentsply has terminated, or threatened to terminate, dealers selling Trubyte teeth if they add a competing tooth brand. Reitman Tr. 1521-22. In 1988, Dentsply terminated Frink Dental of Elk Grove, Illinois as both a tooth and merchandise dealer when it began selling Ivoclar teeth. Cavanaugh Tr. 700-01; Brennan Tr. 1720.

39. In publishing its "Dealer Criteria" in February 1993, Dentsply expressly stated its refusal to deal with dealers that added its rivals' tooth lines. The exclusionary policy that had been applied to Frink Dental was memorialized in Dealer Criterion 6, which reads, "[i]n order to effectively promote Dentsply/York products, dealers that are recognized as authorized distributors may not add further tooth lines to their product offering." GX 31. Dentsply permitted dealers to keep selling any competing brands, commonly called "grandfathered"

brands, they were carrying as of the date Dealer Criterion 6 was formally announced.

Weinstock Tr. 41; Reitman Tr. 3942.

40. The express purpose of Dealer Criterion 6 is to “block competitive distribution points” and “[t]ie up dealers.” GX 171 at DPLY-A 004360; Clark Tr. 2608 (GX 171 a “reiteration” of Dealer Criterion 6).

41. In at least the past 15 years, no dealer has agreed to walk away from its Trubyte tooth business to take on a competitive line. Reitman Tr. 1514-15; Jenson Tr. 2287; Clark Tr. 2631; Pohl Tr. 1907.

B. Dentsply's agreements with new dealers

42. On several occasions, Dentsply has required dealers to drop some, or all, competing tooth brands in order to obtain the Trubyte tooth line in the first place. For example, in 1992, Dentsply recognized Jan Dental in exchange for its agreement to stop selling Vita, Kenson, Dentorium, and Justi teeth. GX 24, 26; Pohl Tr. 1908-1910. Two years later, Dentsply authorized Darby as a Trubyte tooth dealer upon Darby's agreement not to add the Vita tooth line. GX 82 at DS 015663; Clark Tr. 2636.

43. The agreements have had an anticompetitive purpose as well. *E.g.*, GX 26 at DS 016474 (“[o]pening Jan with teeth will increase our presence within the laboratory market and eliminate several competitors”); GX 86 at DS 015805 (DTS recognized to “fully eliminate the competitive threat they pose by representing Vita and Ivoclar in three of four regions [in which DTS operated]”).

C. Through these exclusionary actions, Dentsply has caused numerous dealers to drop, or not add, competing tooth brands.

44. Testimony and documents introduced at trial establish that Dentsply has for at least the past 14 years coerced dealers to agree to drop competing brands from, or not add them to, their product offerings. These incidents began at least as early as 1988 and include at least 8 separate incidents since this case was filed in January 1999. As a result, 12 separate brands of teeth have been excluded, and counting each time a single brand has been excluded from a single dealer, there have been a total of 25 incidents where a rival brand has been excluded from a dealer carrying Trubyte teeth. These incidents involve a total of 11 separate dealers, located throughout the United States from New York to California.

1. Frink Dental (Ivoclar, Myerson) (1988)

45. Frink Dental, already an effective dealer for other Ivoclar products, took on the Ivoclar tooth line in 1988 in response to customer requests for Ivoclar teeth. Ganley Tr. 992-93, Cavanaugh Tr. 724. After Frink began carrying Ivoclar teeth, Mr. Cavanaugh of Frink was told in a letter from Bob Brennan, then Trubyte General Manager, and in a meeting with Mr. Brennan and Mr. Borgelt, then Dentsply's president, that Frink had an agreement with Dentsply to sell its teeth exclusively. Either Frink had to cease selling Ivoclar immediately or Dentsply would stop selling Frink all Trubyte products, including teeth and merchandise. Cavanaugh Tr. 692-99, 727-28. Borgelt explained Dentsply's position by stating "we cannot let Ivoclar get a foothold in the United States. This is our most highly profitable product out of our Dentsply division." Cavanaugh Tr. 695. When Mr. Cavanaugh decided to keep the Ivoclar line, Dentsply terminated Frink for all Trubyte products, both teeth and merchandise,

Cavanaugh Tr. 699-701, because Dentsply “wanted to make a strong point.” Brennan Tr. 1720. Other dealers provided teeth and other Trubyte products to Frink at cost, because they felt Dentsply was trying to exercise too much control. Cavanaugh Tr. 701-05. Over time, Dentsply tracked down all but one of the dealers and threatened to cut them off if they continued to supply Frink, and as a result of these threats, these dealers stopped supplying Frink. Cavanaugh Tr. 705-07.⁴ After consulting with his sales force, Mr. Cavanaugh gave up the Ivoclar tooth line, and when he told Mr. Brennan he was dropping Ivoclar and returning to Dentsply Mr. Brennan told him he would be re-established as a Trubyte dealer from the day Frink stopped selling Ivoclar. Cavanaugh Tr. 712-14, Ganley Tr. 1105. *See also* Reitman Tr. 1523. Moreover, after Frink was reestablished as a Trubyte dealer, Cavanaugh considered carrying other lines. Although he didn’t do so because of what happened after he added Ivoclar, he would have added Myerson if he could have. Cavanaugh Tr. 717-18.

2. Zahn Dental (Ivoclar) (1988)

46. In 1988, Norman Weinstock of Zahn Dental met with Kevin Dillon, then the president of Ivoclar, and discussed the possibility of Zahn taking on the Ivoclar tooth line and becoming Ivoclar's national dealer, with Frink Dental servicing the Midwest. Weinstock initially felt Zahn would take on the line. Weinstock Tr. 149-51. However, Bob Brennan, then head of the Dentsply tooth division, and Gordon Hagler, then Sales Manager, told

⁴ For example, after Frink was cut off by Dentsply, Atlanta Dental sold Dentsply teeth to Frink for around a year. Harris Tr. 589-90, 591-94, GX 1. Atlanta Dental charged Frink the same price that it paid Dentsply and did not make any profit from selling Dentsply teeth to Frink. Harris Tr. 594. Atlanta Dental stopped selling Dentsply teeth to Frink when Dentsply threatened to pull the Dentsply tooth line from Atlanta Dental. Harris Tr. 595-98. The fact that Atlanta Dental and other dealers actively opposed and undermined Dentsply’s restrictive policies contradicts Prof. Marvel’s theory that these policies are efficient and procompetitive. *See* ¶ PFF ¶¶ 379-81.

Weinstock about the Dentsply policy later embodied in Dealer Criterion 6, and stated that if Zahn took on the line of Ivoclar teeth, Dentsply would not allow Zahn to distribute Dentsply teeth. In several telephone calls and personal meetings over a two-month period, including a very heated discussion with Hagler, Weinstock learned that Dentsply would not tolerate Zahn taking on a competing product line. Dentsply management explained that they felt they had to protect their business and were not going to allow Zahn or anybody else to take on competing premium lines of teeth. Weinstock Tr. 149-52. After these discussions -- and after he saw how unfavorably Ivoclar's \$1.2 million in projected U.S. sales compared to Zahn's annual Dentsply tooth sales of around \$8 million -- Weinstock decided to keep his Dentsply line rather than replace it with the much smaller amount of Ivoclar sales. Consequently, Weinstock told Mr. Dillon about Dentsply's threat, that Zahn couldn't afford to lose the Dentsply line, and that Zahn therefore would not carry Ivoclar teeth. Weinstock Tr. 152-53; Ganley Tr. 1001; Reitman Tr. 1524.

3. Jan Dental Supply Company (Vita, Kenson, Dentorium, Justi) (1992)

47. In October 1992, Dentsply opened Jan Dental Supply Company as a Trubyte tooth dealer, after Jan agreed to stop selling Vita, Kenson, Dentorium and Justi teeth. GX 24, 26; Reitman Tr. 1525. Dentsply opened Jan, in part, to "eliminate several competitors." GX 26 at DS 016474. Vident believed that before it was cut off Jan Dental had done "a wonderful job" as a Vita tooth dealer. Whitehill Tr. 263-64.

4. Atlanta Dental Supply (Vita) (early 1990's)

48. In the early 1990's Atlanta Dental considered adding Vita teeth to its product offering after Betsy Harris, manager of Atlanta Dental's tooth department, received requests from current and potential customers asking whether she could carry Vita teeth. Harris Tr. 599-600, 615. Ms. Harris understood that these customers were interested in buying Vita teeth from Atlanta Dental rather than from Vident in California because Atlanta Dental sold them locally. Harris Tr. 599-600. Ms. Harris had initial discussions with Vident about taking on the Vita line, and they planned further discussions, after Ms. Harris had a chance to review Vident product information and a sample contract. Harris Tr. 601-03; GX 296. Ms. Harris later met with Vident representatives, and they decided to draw up a contract for Atlanta Dental to acquire a \$30,000 stock of Vita teeth. Harris Tr. 603-04. Ms. Harris then talked to Bill Yacola of Dentsply to find out what the consequences would be if Atlanta Dental put in a competitive line -- in particular, because of her experience with Frink, Ms. Harris was concerned that she ran the risk of losing her Dentsply line. Harris Tr. 606-07. After checking with others at Dentsply, Mr. Yacola replied that if Atlanta Dental took on Vita teeth Atlanta Dental would no longer be able to sell Dentsply teeth. Harris Tr. 607-08. Atlanta Dental decided not to put in the Vita line, in order to avoid jeopardizing their Dentsply business. Harris Tr. 608-10. At that time their sales revenue for artificial teeth was a million dollars a year, and Dentsply teeth comprised 90% of that revenue. Harris Tr. 615. "I had no way of knowing what our Vita sales would be at that time, so losing that much business was -- this is my livelihood, this is what I do, and I didn't want to jeopardize my company or myself in that

way.” Harris Tr. 616. Atlanta Dental would have added Vita teeth to its product line in 1993 if it could have done so without jeopardizing its Dentsply business. Harris Tr. 617.⁵

5. Pearson Dental Supply Co. (Vita, Myerson) (1993-94)

49. In late 1993 or early 1994, Pearson took on a consignment of Vita teeth at its southern California facility. Kashfian Tr. 1386. The stock consisted of one tooth cabinet and was worth “a few thousand dollars.” *Id.* at 1388. Pearson also included the Vita teeth in its catalogue. Kashfian Tr. 1404. After a Dentsply sales representative noticed the Vita consignment stock, the Dentsply Regional Manager, Dave Louda, told Pearson that it was not supposed to carry competing tooth lines and that continuing to carry Vita would jeopardize Pearson’s ability to be a Trubyte dealer. Kashfian Tr. 1386-87. Because Pearson was “doing a tremendous amount of business with the Trubyte division,” and because Vita teeth were “not as popular as Trubyte,” Pearson agreed to return the tooth consignment to Vita. *Id.*; Reitman Tr. 1524. Moreover, at the same time that Pearson took on Vita teeth, it considered adding Meyerson teeth. Kashfian Tr. 1388-89. When Pearson asked its Dentsply sales representative what the consequences would be of taking on Meyerson, it was informed that it would be “the same scenario as Vita,” and Pearson did not take on the Meyerson tooth stock. *Id.* at 1389.

6. Dental Laboratory Discount Supply (DLDS) (Universal, Vita) (1994).

50. DLDS sought to add Universal and Vita teeth in 1994 to fulfill customer demand. Vetrano Tr. 1423-24. However, a week after DLDS introduced the teeth to its

⁵ Dentsply chose not to cross-examine Ms. Harris regarding her testimony about Atlanta Dental’s effort to take on the Vita tooth line, so her account of these events stands uncontradicted.

customers, Dentsply informed DLDS that if it carried the teeth it would lose the entire Trubyte line of teeth and merchandise. *Id.* at 1426-27. As a result, DLDS did not take on the Universal and Vita teeth. *Id.*; GX 58; GX 66; Reitman Tr. 1524.

7. Darby Dental (Vita, Odipal, Darby's house brands) (1994-95)

51. Darby Dental had lost its Trubyte tooth line when it purchased a company called Nordent, which sold Nordent's house brands of competitive teeth. Nordhauser Tr. 4102-03, 4112-13.⁶ Darby Dental wanted to regain the Trubyte tooth line, and Mr. Nordhauser tried several times to negotiate with Dentsply, but Dentsply demanded that Darby give up all its teeth other than Dentsply in order to get the Dentsply line back. Nordhauser Tr. 4117, 4120. At one point Mr. Nordhauser offered to give up selling a number of brands of teeth, including, *inter alia*, Justi, Myerson, and Kenson, but Dentsply still refused to re-open Darby as a Trubyte tooth dealer. Nordhauser Tr. 4119-21, 4125-27, GX 434. When Darby made plans to take on the Vita tooth line, however, Dentsply finally agreed to reinstate Darby. Nordhauser Tr. 4127-32. Dentsply and Darby agreed that Darby would regain the Dentsply tooth line in return for agreeing to the following conditions:

- Darby agreed that it would not carry the Vita line. Nordhauser Tr. 4121, 4159-60. Mr. Nordhauser believes that the fact that Darby was

⁶ When Darby sued Dentsply to get the Dentsply line back, Dentsply settled the dispute by allowing Darby to sell Dentsply teeth through Kent, a dental dealer that Darby had purchased and that sold Dentsply teeth. Nordhauser Tr. 4113, 4115. But even though Darby owned Kent and Kent sold Dentsply teeth, this was ultimately an unsatisfactory arrangement for Darby. Kent was smaller and a separate unit from Darby, and Darby was not permitted to sell Dentsply teeth through its several locations, or advertise or promote them on Kent's behalf in any way. Nordhauser Tr. 4115-16, 4130-31.

being offered the Vita line influenced Dentsply's decision to reinstate Darby. Nordhauser Tr. 4159. *See also* PFF ¶ 238.

- Darby agreed to cancel its plans to sell, and its initial order for, the Odipal line of teeth; GX 82; Nordhauser Tr. 4123, 4132, 4135.
- Darby agreed to discontinue selling all teeth priced higher than \$1.75 per card within six months. Nordhauser Tr. 4131-32; GX 82. As a result, Darby stopped carrying and selling Kenson, Justi, Ortholux, and Duratone and every other Darby house brand that was priced above the sub-economy level. Nordhauser Tr. 4106, 4121.
- Darby agreed not to advertise its remaining tooth lines as Dentsply's competitors or promote them in the same printed or telephone specials. Nordhauser Tr. 4124-25, 4133. Dentsply didn't want Darby to compare Dentsply teeth to Darby's in any way, so Darby wouldn't push its teeth in a flyer at the same time it pushed Dentsply's. Nordhauser Tr. 4125.
- Finally, Darby also agreed that it would "conduct business in a manner consistent with" the Trubyte dealer criteria. Nordhauser Tr. 4133; GX 82 ("based on agreement to these criteria, Dentsply is prepared to recognize the Darby group as a Trubyte tooth dealer").

Nordhauser Tr. 4131-33; GX 82. *See also* GX 434; Clark Tr. 2636 (Dentsply did recognize Darby as a tooth dealer, and Darby did not take on the Vita tooth line).

8. Dental Technicians Supply (DTS) (Ivoclar, Vita) (1995)

52. Dental Technicians Supply ("DTS") was a laboratory dealer with locations in New Hyde Park, NY, Kansas City, MO, and Denver CO, and Orlando, FL. Rath's Tr. 1144-45; Underwood Tr. 3377.⁷ DTS had been a Trubyte tooth and merchandise dealer since the mid- 1980's, but in 1990 Dentsply terminated DTS as a tooth dealer. Rath's Tr. 1147-48; Underwood Tr. 3405. In approximately 1991 DTS began selling Vita and Ivoclar teeth at all

⁷ Robert Rath's was the owner of the New York DTS location and the co-owner of the Kansas City DTS location with Tom Underwood. Rath's Tr. 1146; Underwood Tr. 3377.

its locations, and between 1991 and 1995 sales of Vita and Ivoclar teeth increased at all DTS locations. Rath's Tr. at 1149-56; Underwood Tr. 3400; Whitehill Tr. 259-60; Ganley Tr. 1002; GX-19. In subsequent negotiations over those years regarding reinstating DTS as a Trubyte tooth dealer, Dentsply consistently maintained that, as a condition of reinstatement, DTS would be required to stop selling Vita and Ivoclar teeth. Rath's Tr. 1157; Underwood Tr. 3407-09. DTS finally reached an agreement with Dentsply at a meeting in York, Pennsylvania in June 1995. Rath's Tr. 1157-59. Under that agreement, in return for being reinstated as a Trubyte tooth dealer DTS dropped Vita and Ivoclar teeth from the Kansas City, Denver, and Orlando locations, and in New York, DTS agreed to remove the Ivoclar line and to limit its Vita sales to existing customers in the Northeast. Rath's Tr. 1159-65; GX 93 at DPLY-A 18372-79; GX 158 at DS 015783-91; Reitman Tr. 1522-23, 1525. One of Dentsply's "considerations" in recognizing DTS was that it would "fully eliminate the competitive threat that [DTS locations] pose by representing Vita and Ivoclar in three of four regions." GX 86 at DS 015805-06.

9. Marcus Dental (Kenson) (Spring 2000)

53. In the spring of 2000, Marcus Dental, a Trubyte dealer in Minneapolis, had taken on the Kenson tooth line because of an out of stock problem with Trubyte teeth. Jenson Tr. 2291. For several months during 2000, Trubyte was having problems supplying teeth to dealers. Jenson Tr. 2292. The service problems started in the spring but continued into October 2000, and in August 2000 Trubyte's success rate for fulfilling one-day shipments dropped to an all-time low of 80.5% (Dentsply's goal was 97%). Jenson Tr. 2292-93 (level dropped more than three points in one month alone, dropping from 83.7% in July to 80.5% in

August). That rate of order fulfillment by Dentsply caused concern among Trubyte dealers such as Marcus. Jenson Tr. 2292. Due to these problems with Dentsply's service levels, some of Marcus' lab customers had switched to Kenson teeth and Marcus was trying to retain its customers by selling them Kenson teeth. Jenson Tr. 2291-92. Dentsply, however, enforced Dealer Criterion 6 against Marcus, and Marcus returned the Kenson teeth to Myerson. Jenson Tr. 2293; Swartout 1314-15; Reitman Tr. 1525.

10. Zahn Dental (Enigma) (mid-2000)

54. In mid-2000, when Leach & Dillon agreed to take on the Enigma tooth line after Mr. Dillon failed to recruit another dealer,

Jenson Tr. 2295-96

See also Jenson

Tr. 2296-97 (Dentsply informed Zahn that it viewed this proposal as a violation of Dealer Criterion 6).

11. Thompson Dental (other tooth lines) (Fall 2000)

55. In his November 2000 monthly report to his superior, Mr. Roos, Mr. Jenson reported that Thomson Dental, a Trubyte tooth dealer, was exploring competitive tooth lines. Jenson Tr. 2297. Mr. Uthus, Trubyte's Director of Sales, quickly squelched Thompson's effort, explaining Dentsply's "agreement" with Thompson on competitive teeth and faxing Thompson a copy of the dealer criteria. Jenson Tr. 2297-98.

12. Patterson Dental (other tooth lines) (Fall 2000)

56. Dentsply put a quick stop to another dealer's consideration of adding a rival line in Fall 2000, when Patterson inquired about carrying competitive tooth lines. Jenson Tr. 2298. Mr. Jenson told Mr. Easty of Patterson that the Dentsply dealer criteria would be enforced. Jenson Tr. 2298.

13. Zahn Dental (Heraeus Kulzer) (2001)

57.

⁹ Last fall, Horst Becker of Heraeus Kulzer also spoke with Zahn's

president and its director of marketing about Zahn carrying Heraeus Kulzer teeth. Becker Tr. 1818-20.

14. Patterson Dental (Kenson) (2001)

58. In 2001 Patterson bought a Trubyte tooth dealer in L.A. named Guggenheim which also carried Kenson teeth. Patterson itself did not carry Kenson teeth, and so Trubyte asked Patterson to comply with Dealer Criterion 6 and drop the competing tooth lines from the Guggenheim locations. Jenson Tr. 2289-90; Reitman Tr. 1524-25. Patterson complied and dropped the Kenson teeth that Guggenheim had been selling. Jenson Tr. 2291; Reitman Tr. 1524-25.

15. Darby/DTS (Vita) (1998-2001)

59. When Darby acquired DTS in 1998, the DTS facilities in Kansas City and Denver did not carry Vita teeth; DTS carried Vita teeth only in New York and sold them only to customers in New York. Nordhauser Tr. 4101, 4104-05; Jenson Tr. 2288 (prior to DTS becoming a Trubyte dealer, Dentsply had agreed that DTS could keep its New York Vita stock). See GX 158 at DS 015783. When Darby acquired DTS, Dentsply "made it very clear . . . that we cannot promote or give to the rest of our customers Vita teeth. We can only, for a very short period of time, sell it to the customers we have." Nordhauser Tr. 4106, 4135-36; GX 130 at DARBY 001120Y-21Y. As a result, Mr. Nordhauser agreed that Darby would not

sell Vita teeth to any other Darby or DTS division,¹⁰ and that Darby would sell Vita only through the New York office to the “few” Vita teeth customers that DTS already had.

Nordhauser Tr. 4104-07, 4136-37. Dentsply also insisted, “as you can see by the letter,” that Darby ultimately “would have to terminate the sale of Vita teeth.” Nordhauser Tr. 4107, 4135-37; GX 130 at DARBY 001120Y-21Y; Jenson Tr. 2289 (when Darby bought DTS Trubyte asked Darby to comply with Dealer Criterion 6 and get rid of the Vita line). Although Darby had wanted to keep the Vita tooth line in New York, after this transitional period Darby ultimately complied with Dealer Criterion 6 in 2001, and now DTS and Darby do not sell Vita teeth. Jenson Tr. 2289-91.¹¹

16. Zahn Dental (Vita) (1999-2002)

60.

¹⁰ “Dentsply, as you can see by the numbers, is the major line in this country. . . . I would not jeopardize losing that line to take another line, okay? . . . I am not going to take a chance and lose Dentsply to sell Vita teeth or anything else, so we compromised.” Nordhauser Tr. 4107

¹¹ Mr. Nordhauser had believed Dentsply would not ultimately force Darby to choose between carrying Dentsply and carrying Vita. Nordhauser Tr. 4138-39. Given that Darby had so little Vita business and that Darby was not going after more, he believed this could not hurt Dentsply in any way. Nordhauser Tr. 4138-39. Mr. Nordhauser also felt that because the Vita teeth had always been in DTS’s New York branch, this was “not something that I created new.” Nordhauser Tr. 4138-39. “Dentsply gave DTS . . . permission to use the Vita teeth . . . while they are handling the Dentsply teeth. . . . [T]here is no threat here. . . . The dealer criteria does not pertain here. It does pertain if I now took on another line that I didn’t have before. But this is something different.” Nordhauser Tr. 4138-39. But Dentsply did force Darby to choose, and now that DTS/Darby’s New York branch has dropped Vita teeth, Darby and DTS no longer sell any Vita teeth at all, from any location. Jenson Tr. 2289-91.

III. Artificial tooth manufacturers require a network of dental lab dealers to compete effectively in the market.

61. The “general norm in the [artificial tooth] business is distribution of teeth through dental dealers. It’s the expectation of the laboratory to purchase and receive products that way and it’s also the expectation of the laboratory to receive the level of service provided by a dental dealer.” Ganley Tr. 1007. As Kevin Dillon, Ivoclar’s former president and the current distributor of Enigma teeth, stated, “[i]f you don’t have distribution with the dealer network, you don’t have distribution.” Dillon Tr. 4081.

A. Dental lab dealers provide numerous benefits to dental labs.

62. While the 7,000 dental labs in this country are quite heterogeneous, and the strength of each lab’s preference for any particular dealer service will vary, most labs find at least some benefit from the services offered by dental lab dealers. Reitman Tr. 1484-85.

Zahn Dental alone sells at least some teeth to 3,000 to 4,000 labs each year. Weinstock Tr. 168-69. Some of these services are unique to local dealers, while others are provided by all dealers regardless of their location. Reitman Tr. 1485. All of the numerous services that dealers provide to dental labs indirectly benefit manufacturers. Weinstock Tr. 135.

1. Local availability of teeth

63. Dealers maintain tooth stocks, which provide labs with a local inventory of teeth. Miles Tr. 3493; Weinstock Tr. 106; Reitman Tr. 1494; GX 364-C. Labs greatly value having this local access to a wide array of teeth. Reitman Tr. 1541 (Wind Survey showed that second-most important attribute of dealer was providing local stock of teeth); Miles Tr. 3493; Weinstock Tr. 106; Dillon Tr. 4094. Small labs, in particular, regard a local dealer inventory as a surrogate for its own, in-house inventory. Reitman Tr. 1495.

64. The record is replete with specific, real-world examples showing that labs value the ability to purchase teeth from local stocks.

(a) When Zahn opened its Indianapolis tooth counter, it dramatically increased its tooth business in that local area. Before it did so, it had only a couple of Indiana tooth customers, and its tooth sales were under \$50,000 per year. Weinstock Tr. 108, 166.

(b) Zahn's experience in Florida was the same.

Prior to that, its sales had been between \$300,000 to \$400,000. Weinstock Tr. 109, 166.

(c) According to Patterson Dental's president, "[w]e seem to do well only where we had a tooth stock and significant tooth stock. In areas where we did not, we had a difficult time to do business." Wiltz Tr. 3822. When Patterson tried to consolidate five tooth stocks in the Northeast into one location in Lancaster, Pennsylvania, its tooth sales declined in the areas where tooth stocks were removed. A year later, Patterson concluded that this consolidation effort was a failure. Wiltz Tr. 3821-23. After it returned tooth stocks in the Pittsburgh and New York areas to the previous levels, it regained the market share it had lost. Wiltz Tr. 3824-25.

(d) Atlanta Dental's tooth sales in the Birmingham, Alabama area declined considerably after it consolidated most of that stock with its main stock in Atlanta (due to the death of the local tooth counter specialist there). It still maintains a skeleton stock in Birmingham for the convenience of customers who want to pick up their tooth orders themselves. Harris Tr. 586-87, 640-41.

(e) Sidney Nordhauser of Darby Dental testified that his company does not compete with Hendon Dental, another dealer selling Trubyte teeth, "because they are in Texas. We are not." Nordhauser Tr. 4145. "We don't have a tooth counter in Texas or anywhere near there we can get teeth to them." Nordhauser Tr. 4145. Although Darby sells teeth in Texas when asked, Mr. Nordhauser believes Darby "can't compete" with a local tooth counter in selling teeth. Nordhauser Tr. 4145.

(f) Like many other dealers, Accu Bite Dental has found that a high percentage of its tooth business comes from the area in which it has a tooth stock. Accu Bite's one tooth stock is in Livonia, Michigan, a western suburb of Detroit. Desautel Tr. 2426. In 1999, 80% of Accu Bite's tooth sales were made to labs located in southeast Michigan. Desautel Tr. 2462.

(g) Dentsply's competitors have found that their tooth sales have been higher in the few areas in which they have been able to obtain dealer distribution. Whitehill Tr. 251 (Vident's sales "substantially higher" in limited areas served by small, specialty dealers selling Vita teeth); Swartout Tr. 1317 (Myerson has had sales growth of 20% per year in Connecticut, where it has dealer distribution).

2. Lower delivery costs

65. Proximity to a dealer increases the delivery options available to a lab and decreases shipping charges. Reitman Tr. 1495; Turner Tr. 423-24; Swartout Tr. 1309. Because ground transportation is less expensive than air service delivery, Turner Tr. 424, a lab can lower its shipping charges by buying teeth from a dealer close enough to provide next-day service by UPS ground service. Reitman Tr. 1496; Turner Tr. 423-24. Some dealers have arranged very favorable deals with delivery services, and are able to pass those savings on to their lab customers.

Obst Tr. 2717 (DSG labs receive free overnight delivery from Zahn); Ryan Tr. 1238-39 (DLDS pays entire shipping charge for teeth purchased by Sonshine Dental Lab).

3. Same-day pickup or delivery

66. The use of a local dealer is perhaps most critical when labs need teeth on the same day they order them. The need for same-day pick or delivery of teeth is fairly common in the industry.

Desautel Tr. 2463 (in 1999, "a lot of" walk-up business at Accu Bite's Detroit tooth counter; labs would "call in and about 15 minutes later they will come in and pick it up"); Kashfian Tr. 1379-80 (10%-15% of Pearson Dental's overall tooth orders; 40% at Southern California location); Harris Tr. 662 (at Atlanta Dental, 5-10 customers per day); Nordhauser Tr. 4142-43 (perhaps five customers in New York, "but some of the other facilities have a steady walk-in business"); Coykendall Tr. 3312, 3332 (50% of Hopkins Dental Lab's business is repairs, where lab needs a ready stock of teeth to complete job in same day).

67. Same day service is particularly important for emergency cases, such as in repair cases where a denture cracks (or a tooth chips off) and the lab needs to replace the tooth with one that matches the shade and brand precisely. Reitman Tr. 1496-97; Armstrong Tr. 2369 (patients value fast service particularly when losing anterior teeth). *See also* Becker Tr. 1831 (even non-emergency cases can lead to emergency tooth orders: labs often run out of stock in the middle of a denture case and need a "replacement of materials basically in the next hour or so to finish their case, and so that means a fast delivery and fast service is, to many labs, essential"). One important way in which labs compete against each other is by providing fast and reliable service in such situations. Weinstock Tr. 89-90; Reitman Tr. 1497.

68. Labs prefer to buy tooth brands that would be available on the same day, if necessary, even though the vast majority of their cases do not require same-day delivery or pickup. Weinstock Tr. 133 ("perception is, if you are not local, many people are afraid to deal

with you . . . The perception in the dental lab business is basically reality”); Reitman Tr. 1500. Repairs usually require a lab to obtain the same brand of tooth originally used in the denture. Because labs want to be able to obtain teeth on the same day for repair work, the availability of a tooth brand through a dealer is a significant factor influencing the lab’s initial choice of a tooth brand to use in its business. Reitman Tr. 1499-1500.

69. Dentsply itself recognizes the importance of having tooth counters located in proximity to dental labs to be able to provide same-day service. In a September 15, 1993, letter John Weiland, Senior Vice President of Dentsply’s North American Group, explained to Zahn’s Norman Weinstock about opening a new Dentsply dealer less than ten miles away from an existing Zahn tooth counter in Dania, Florida:

The York Division’s decision to open J&S Dental Supply is based on a market demand that cannot be fulfilled from Dania, Florida. Namely, we believe certain customers in the Miami area need a local presence to be able to drive over and pick up teeth in rapid turnaround situations.

GX 44; Weinstock Tr. 114-16.

4. Fostering relationships and loyalty

70. “Relationships are very important in this industry.” Reitman Tr. 1491. In selling teeth to denture labs, a dealer’s relationship is one of the three biggest things. Weinstock Tr. 129. Judd Ryan selected DLDS as his dealer because he has “got a great relationship with them [and] we’ve been dealing with them for a long time.” Ryan Tr. 1237. Similarly, Ralph Langer of Langer Dental Arts likes to buy teeth from DLDS because of the close relationship he has developed with that dealer:

I go where I feel most comfortable. In other words, where people recognize me and have a genuine interest in me because I’m spending some dollars. Well,

that's the case with DLDS. They are very, very nice people, people that we've done business with for ten-plus years. People that we know we can relate to and they can relate to us. In fact, it goes so far, our DLDS rep has a picture of my wife and I in Hawaii on her place and we have one in our office.

Langer Tr. 3279-80. *See also* Vetrano Tr. 1418 (relationships between labs and DLDS sales reps are "our lifeline" and "very valuable"); Obst Tr. 2748 (increased purchases from Zahn, in part, due to "exceptional service and relationship that has been built up" with Zahn). Moreover, local tooth counters can help build these customer relationships, because they give dealers places to hold programs and get closer to local dental lab associations. Weinstock Tr. 107.

5. Inventory management

71. Dealer sales representatives visit dental labs and manage their inventory of teeth by determining which tooth cards have been used, placing orders to replace those that have been used, and taking back broken sets. Reitman Tr. 1500; Becker Tr. 1820; Swartout Tr. 1309; Nordhauser 3421-22. As Horst Becker of Heraeus Kulzer testified, dealers can provide a "far higher" level of service than manufacturers because dealer reps regularly call on labs, count teeth and restock inventory. Becker Tr. at 1820.

72. Atlanta Dental has one lab specialist whose primary function is to call on labs and service their tooth stocks. Harris Tr. 644-45. The majority of Atlanta Dental's lab customers that maintain an inventory on site choose to have Atlanta manage it. Harris Tr. 648-49.

73. This inventory management function is particularly valuable when a lab's tooth stock is consigned from a manufacturer or dealer. In that case, dealer sales representatives can

monitor the stock to ensure that the lab pays for the inventory that is being used. Weinstock Tr. 132; Ganley Tr. 1010-11; Reitman Tr. 1492-93. Zahn employs not only its own sales force, but many of the Sullivan-Schein operatory sales persons, to visit dental labs and monitor consignment stocks. Reitman Tr. 1493. *See also* Obst Tr. 2743 (“a lot” of inventory in DSG labs is on consignment).

6. Prompt, accurate and reliable delivery

74. Prompt, accurate, and reliable delivery is the essence of what it means to be a dealer. When labs place an order, they want to get it quickly, they want to make sure what they order is what they receive, and they want to receive that service day in and day out. Reitman Tr. 1486; Weinstock Tr. 129-30. A direct-selling supplier can try to provide that same service, but delivery is far less of a focus for a manufacturer. Dealers, on the other hand, specialize in distribution. Reitman Tr. 1487;

Brennan Tr. 1706 (“distributors did distribution” better than Dentsply).

75. Trubyte General Manager Steven Jenson also acknowledged that Dentsply’s dealer network, at least in part, makes Trubyte teeth readily available to labs. Jenson Tr. 2267. Indeed, while at Trubyte, Mr. Jenson directed the Trubyte sales staff to reinforce to dentists and labs the service advantage of a dealer network versus a manufacturer’s direct tooth sales. Jenson Tr. 2268.

7. “One-stop” shopping

76. Labs benefit from reducing the number of vendors with which they must deal. Reitman Tr. 1487 (explaining that term “one-stop” shopping does not literally mean buying all

supplies from one source). These benefits include fewer accounts, fewer invoices to pay, and the savings of time, effort and cost. Weinstock Tr. 102-03; Reitman Tr. 1487-89. As Judd Ryan of the Sonshine Dental Lab in Bear, Delaware testified, the time it takes for his staff to make phone calls or send faxes to different vendors is "important. Time is money." Ryan Tr. 1286. *See also* Weinstock Tr. 102 (Zahn believes labs benefit by reducing number of invoices and statements, which are costly to process); Swartout Tr. 1308-09 (many labs are small businesses and reducing vendors "makes their business simpler, fewer bills to pay"); Nordhauser Tr. 4104 (small labs "don't have a person to do the buying, so if they can get everything from one salesman coming in or one telemarketer or something, it's a great advantage, it is obvious").

77. The large lab dealers selling Trubyte teeth offer these "one-stop" shopping benefits. Zahn Dental offers an incredibly broad array of products for sale — over 25,000 tooth choices and 8,500 merchandise and equipment options. GX 160; Weinstock Tr. 102. Under the direction of Norman Weinstock, Zahn's Chairman, one-stop shopping is "something that we have been selling and selling hard for a number of years." Weinstock Tr. 102. Similarly, Betsy Harris of Atlanta Dental testified that "[a] lot of our customers . . . like to do one-stop shopping. They like to be able to make one phone call and get everything that they need rather than call around to two or three different places. And their time is more well spent doing their job than shopping on the phone." Harris Tr. 617. *See also* Vetrano Tr. 1414.

78. By consolidating purchases with a single dealer, labs can take advantage of volume purchase discounts such as those offered under Zahn's VIP program. Weinstock Tr.

147; Reitman Tr. 1488. For example, Dental Services Group ("DSG") labs increased their purchases from Zahn "a lot" as a result of Zahn's volume purchasing program. Obst Tr. 2747. DSG labs do not have a volume discount arrangement with any other dealer, preferring instead to consolidate more of its purchases through Zahn. Obst Tr. 2749.

8. Handling tooth returns

79.

Weinstock Tr. 81 (30% of the teeth sold by Zahn are returned to it). This percentage is likely to increase in the future because partial dentures are becoming more and more common. Clark Tr. 2498. Taking back returns of broken sets is a service provided by dealers and valued by dental labs. Reitman Tr. 1489; Swartout Tr. 1309; Weinstock Tr. 81. It is also less costly for a lab to return several brands of teeth to a single dealer, rather than to several different locations. Reitman Tr. 1489.

9. Other services

80. Dealers inform labs of new products in the tooth and dental market, as well as other markets. Weinstock Tr. 130-31; Reitman Tr. 1490; Vetrano Tr. 1417-18. Labs are able to make more informed choices about products by receiving information from more than one source. Reitman Tr. 1490-91.

81. Through their tooth counter specialists, dealers also provide advice to labs on tooth and mould selection. Dealers are experienced in handling teeth and are familiar with

different shades and moulds, and are therefore able to assist labs when they have questions.

Reitman Tr. 1491.

B. Dental lab dealers provide numerous benefits to tooth manufacturers.

82. Because dental lab dealers are the preferred tooth distribution channel for great numbers of dental labs, the main benefit that dealers provide to tooth manufacturers is that dealers make their teeth available through the channel that customers prefer. Reitman 1501-02. Moreover, a number of additional benefits accrue directly to tooth suppliers by being able to sell through dealers. Weinstock Tr. 134-37; Reitman Tr. 1502-03; GX 364-D.¹²

1. Additional inventory in the market

83. Dealers carry a substantial amount of a manufacturer's inventory, which reduces the capital costs incurred by the supplier. Reitman Tr. 1503; Becker Tr. 1821-22; Weinstock Tr. 134; Swartout Tr. 1307-08. Dealers carrying Trubyte teeth maintain approximately 100 tooth stocks across the United States. Reitman Tr. 1483-84; GX 364-B; Jenson Tr. 2267. Given that just one tooth stock, Atlanta Dental's, contains \$145,000 worth of Trubyte teeth, Harris Tr. 617, the total amount of Trubyte tooth inventory owned and maintained by dealers is in the millions.

2. Handling accounts receivable

84. Manufacturers benefit significantly by having dealers handle the accounts receivable function. Reitman Tr. 1503; Kashfian Tr. 1383; Turner Tr. 450. Direct-selling manufacturers incur the substantial costs of billing, invoicing, and collecting debts from

¹² GX 364-D is identified in the trial transcript as GX 368, however, it was subsequently renumbered.

thousands of dental labs. Weinstock Tr. 134-35; Reitman Tr. 1503. For example, Dentsply currently sells to only 23 dealers. If it tried to sell directly to the 7,000 labs that fabricate dentures, it would incur a huge increase in billing, invoicing and collections costs. Reitman Tr. 1503; Weinstock Tr. 134 (Zahn "takes a lot of the cost away from the manufacturers, in that we collect the money"). This function is particularly important because the dental laboratory industry has not had the greatest of reputations over the years, of being fast payers or good credit risks. Weinstock Tr. 93. As a result, dealers like Zahn are able to provide extended credit terms to labs that are "way beyond what any manufacturer would really accept." Weinstock Tr. 134. *See also* Vetrano Tr. 1423 (discussing dealers' willingness to extend credit terms for labs "when things are hard").

3. More sales representative coverage

85. Although each manufacturer employs its own sales representatives to promote its tooth products, dealer sales reps add another "voice in the marketplace." Reitman Tr. 1504; Weinstock Tr. 99-100, 139. Often dealer personnel serve a wider array of customers than just those served by a particular tooth supplier's representatives. Reitman Tr. 1504; Desautel Tr. 2469-70 (there aren't enough Dentsply sales reps to canvass all of Accu Bite's accounts, and Accu Bite reps have a greater reach into the labs than Dentsply). *See also* Becker Tr. 1820 (dealers "multiply" the size of a manufacturer's sales force); Swartout Tr. 1307 (dealers are important conduit for supplier's promotional message).

4. Additional advertising channels

86. Similarly, dealers provide additional advertising vehicles such as dealer catalogues and invoice stuffers. Reitman Tr. 1504; Kashfian Tr. 1382; Desautel Tr. 2424-25;

Weinstock Tr. 99-100. Again, having additional advertising channels and more ways of reaching customers, particularly customers that may not be current customers of the supplier, is a benefit to suppliers provided by dealers. Swartout Tr. 1307; Kashfian Tr. 1382; Reitman Tr. 1504.

5. Co-traveling with sales representatives

87. Co-traveling, or "detailing," occurs when sales representatives from both the supplier and dealer travel together to a dental lab. Harris Tr. 635; Reitman Tr. 1505. This benefits the manufacturer because the dealer sales representatives have more frequent access to the dental lab, and probably has a stronger relationship with the lab. Reitman Tr. 1505. Dealers also benefit because the supplier's sales representative is better able to talk about the specific products. Therefore, co-traveling helps to increase sales and benefits both the dealer and the supplier. Reitman Tr. 1505.

6. Referring new lab customers to supplier representatives

88. Dealers refer new lab customers to supplier representatives. Reitman Tr. 1506. When a new lab enters the business, it needs various equipment, benches, lathes, grinders, flasks, trays and other items that are typically purchased from a dental lab dealer. As a result, dealers know about these new customers and can provide valuable leads to its suppliers, leads that the suppliers would not have if they were selling teeth directly. Reitman Tr. 1506.

89. Dealers employ tooth counter specialists who, along with dealer sales reps, have the daily, ongoing contact with the lab customer. Miles Tr. 3489. These relationships

enable dealers to help market teeth, particularly based on their sales representatives' intimate knowledge of dental labs. Weinstock Tr. 113, 135. These established relationships are important to a supplier such as Dentsply because it does not have a close relationship with most of the labs selling Trubyte teeth. Miles Tr. 3489. Indeed, such relationships have enabled Zahn to help grow Dentsply's business. Weinstock Tr. 113, 135.

7. Generating incremental business

90. Dealers can assist suppliers in generating incremental business by promoting the manufacturer's product and providing these other services. Reitman Tr. 1506; Weinstock Tr. 99-100 (Zahn sales force generates new customers for denture products). Mr. Desautel of Accu Bite, one of Dentsply's own witnesses, testified that Accu Bite brings in new customers and new business for Dentsply. Desautel Tr. 2471. Even Dentsply agrees. *See* Reitman 1506, GX 31 (Dealer Criterion 5 anticipates that new dealers can bring incremental business to Dentsply, since it requires that they do so in order to be recognized as a Trubyte dealer).

C. Dentsply greatly values its diverse network of national, regional and local dental lab dealers.

91. Given all of the benefits that dealers provide to both tooth suppliers and dental labs, it is not surprising that Dentsply greatly values its diverse network of dental lab dealers. It benefits from the roughly 100 dealer stocks of Trubyte teeth that are maintained throughout the country. Reitman Tr. 1483-84; GX 364-B; Jenson Tr. 2267. Trubyte tooth stocks are located in essentially all of the major metropolitan areas in the United States, far exceeding

the tooth stock network of any of its competitors. Jenson Tr. 2267-68. And Dentsply would like even more tooth stocks than it has today. Miles Tr. 3493 ("I could sell more teeth").

92. Dentsply has valued not only its large, national dealers such as Zahn, but its smaller, more local dealers as well. As Chris Clark said, "I valued all my dealers, absolutely ... I'm a cash cow business in no growth. I need all of my dealer friends." Clark Tr. 2648-49.

93. One reason why Dentsply values its smaller dealers is that they command a very high share of the Trubyte teeth sold in their local areas. For example, in 1998, Bernie McNickle of Reeve/Burkhardt Dental Supply in Oklahoma City wrote to Dentsply out of a concern that he was losing a substantial amount of business to larger, out-of-state dealers such as Zahn. Clark Tr. 2647-48. In responding to McNickle's concern, Dentsply's Chris Clark wrote that Trubyte tooth dealers with local tooth stocks in Oklahoma accounted for 80% of Trubyte sales in the state in 1997. "While [this percentage] may be down from ten years ago," Clark wrote, "I believe it underscores the value of full-service dealers like Reeve/Burkhardt to the Trubyte tooth business." GX 121 at DPLY-A 023489; Clark Tr. 2647-49.

94. Another reason Dentsply has valued its local dealers is that they provide important service benefits to lab customers. While larger, more mail-order-oriented dealers might offer a price break, as Dentsply's Robert Brennan wrote in a letter to another dealer, Dentsply "believe[s] that if a local dealer is successful at selling and providing service, a few dollars in savings from mail order will be more than offset. Customers will return for excellent service. Price can never replace service over the long haul." GX 30.

95. Dentsply has recognized that labs often need same-day delivery or pickup of teeth for their emergency cases. In 1993, Dentsply recognized a new dealer in Miami, Florida, J&S Dental Company, that was located no more than 10 miles from an existing Zahn tooth counter. Zahn's Norman Weinstock raised his concerns about this new dealer with Dentsply's senior management. Weinstock Tr. 113-117. In a September 15, 1993 letter, a Senior Vice President of Dentsply stated that:

The York Division's decision to open J&S Dental Supply is based on a market demand that cannot be fulfilled from Dania, Florida. Namely, we believe certain customers in the Miami area need a local presence to be able to drive over and pick up teeth in rapid turnaround situations.

GX.44; Weinstock Tr. 116-118.

96. Dentsply has encouraged dealers selling Trubyte teeth to open more tooth counters and has tried to slow down any efforts by dealers to consolidate tooth stocks. Dentsply encouraged Zahn to open tooth counters both in North Carolina and Texas when Healthco, another dealer selling Trubyte teeth, was on the brink of insolvency because otherwise "it would have left a tremendous gap in the southeastern United States." Weinstock Tr. 111. In 1996, when Patterson Dental was considering tooth stock consolidation, Dentsply

suggested that Patterson conduct market research before doing so in order to slow down the consolidation process. Clark Tr. 2657-58 ("I was trying to buy time"). *See also* DX 41 at DS 024281 (noting that Patterson "ruined a good thing" and "lost a ton" by consolidating tooth stocks in late 1970's).

97. Dealers and the support they provide have been very important to Dentsply's tooth business. Miles Tr. 3489; Turner Tr. 450 (dealer support "very important"); Brennan Tr. 1706 (dealers, not Dentsply, do distribution well). In refusing to sell directly to its largest lab customers, Dentsply has done more than merely state that it is committed to its current distribution system of selling to dealers -- it has specifically told labs that "Dentsply simply cannot provide adequate service to our lab customers absent our dealer network." DX 653 at DS 005171.

D. The Wind Survey demonstrates that labs prefer to buy teeth from laboratory dealers.

98. Dr. Yoram (Jerry) Wind designed and conducted a survey of dental laboratories in order to produce a representative sample of labs and obtain data from that sample that could be used to establish the relative importance of brand, distribution and pricing in laboratories' purchasing decisions for prefabricated plastic teeth used in dentures.¹³

¹³ Dr. Wind is an expert in the field of market research, including survey design, methodology, and analysis. Wind Tr. 737, 761. Market research includes defining the type of research design best suited for a particular study, designing the data collection procedure, collecting data, analyzing the data, and interpreting the results. Wind Tr. 738. Dr. Wind is the Lauder Professor of Marketing and Director of the SCI Center for Advanced Studies in Management at the University of Pennsylvania, Wharton Business School. Wind Tr. 737; GX 440. He also provides marketing, marketing research, business strategy and product development consulting advice to business clients, primarily to Fortune 500 corporations. Wind Tr. 737, 745, 746-47; GX 440 at 22-24. Dr. Wind has received the three major awards in marketing, and is one of the most-cited authors in the marketing field, having published 19 books and over 250 articles and papers. Wind

Wind Tr. 738, 764, 800-01. Dr. Wind analyzed the survey data in order to estimate what would be the impact of changes in distribution options to the market shares of particular brands. Wind Tr. 739, 801-04. The survey data was also used by Dr. Reitman in his econometric modeling of the market share and price effects resulting from Dentsply's exclusionary policies. Reitman Tr. 1469, 1530-32, 1539, 1692.

99. Dr. Wind concluded that the survey produced an appropriate representative sample, and provided a basis for establishing empirically the relative importance to dental labs of tooth brands, types of distribution, and price. Wind Tr. 801.

1. Conjoint analysis survey design

100. Dr. Wind concluded that the survey design he used here (conjoint analysis or tradeoff) was the most appropriate to address the issue in this case -- where there is a clear tradeoff made by dental technicians between brand, distribution, and price when purchasing artificial teeth. Wind Tr. 739, 762, 764. Dr. Rossi agreed that conjoint analysis is appropriate for assessing dental labs' preferences for different brands of artificial teeth, and he would seriously consider using conjoint analysis if he were asked to conduct a survey in this case. Rossi Tr. 3134.

101. Generally, conjoint analysis is the best approach to assess consumer tradeoffs among any possible combination of variables, including those that do not actually exist in the marketplace, and it provides the ability to then decompose those preferences analytically to

Tr. 742-43; GX 440. He teaches courses, publishes, and provides consulting advice in the area of marketing research. Wind Tr. 745-46.

determine their relative importance. Wind Tr. 740, 746, 752, 766. Conjoint analysis is the best approach to estimate consumers' price sensitivity, and has been used to determine how consumers value different distribution outlets for other product offerings. Wind Tr. 753-54; *see also* Rossi Tr. 3118, 3132 (Dr. Rossi has used conjoint methodology in the only survey he actually executed himself, for the University of Chicago/ Sandoz, although that survey was vastly simpler than Dr. Wind's survey here¹⁴ (Rossi Tr. 3120)).

102. Conjoint analysis is the most popular, widely-used and widely-accepted market research analytic methodology by both practitioners and academics, and it has been used in thousands of marketing studies. Wind Tr. 741, 755. Dr. Wind concluded that conjoint survey analysis is reliable as indicated by its widespread use in research, publications, and industry. Wind Tr. 765. Another indication of its reliability and validity is the fact that companies use conjoint analysis repeatedly, suggesting that the users of this methodology believe that it is reliable, valid, and provides very valuable insight and input into their business decisions. Wind Tr. 764-65, *see also* Wind Tr. 751-52.

103. Dr. Wind has conducted numerous surveys, including conjoint analysis surveys, in almost all product areas to address various marketing issues. Wind Tr. 748-758. Dr. Wind has used conjoint analysis surveys for many of his business consulting clients, including, for example, in the design of the Courtyard by Marriot hotel chain. Wind Tr. 748-51. Dr. Rossi does not dispute that hundreds of companies rely on surveys Dr. Wind has conducted to make significant business decisions, and that many of these companies are repeat

¹⁴ The transcript contains a transcription error at 3120: "vastly superior" should read "vastly simpler."

clients. Rossi Tr. 3139-40. Dr. Wind has also used conjoint analysis, as well as other survey methodologies, when he has been retained as a marketing research expert in legal matters.¹⁵

Wind Tr. 755-57.

104. Conjoint analysis is more reliable than simply asking survey respondents to rank the importance of their preferences because of the tendency to indicate that everything is important. Wind Tr. 739, 765, 787. Dr. Rossi agrees. Rossi Tr. 3132-33. Conjoint analysis is also superior to simply asking respondents which alternatives they prefer in a single question (Rossi Tr. 3133, Wind Tr. 790-91). In addition, conjoint analysis is preferable to analyzing historical data because it is not limited to actual marketplace situations. Wind Tr. 766.

105. The conjoint survey design uses constant sum allocation, where a respondent allocated 100 points among the brands on each of the scenario cards. Wind Tr. 785-86. Constant sum allocation is more appropriate for the task in this survey than other types of conjoint design. Wind Tr. 909. Dr. Wind has used a constant sum data collection procedure similar to the one here in most of the conjoint surveys he has conducted both in his consulting and research because it the best method among the various ones available for measuring preferences. Wind Tr. 787, 841. Constant sum allocation is widely used in marketing research and social science research. Wind Tr. 788. It is a very informative way of collecting data and is an easy and natural task for respondents to complete. *Id.* It is quite common for

¹⁵ Dr. Wind co-wrote the primary book on the topic of conjoint analysis surveys such as the one used in this case, and has written many other publications dealing with the specific areas of marketing research and modeling, including surveys. Wind Tr. 743-44; GX 440 at pp. 13-16.

the hundred points to represent intended purchase shares, such as for example, in the survey conducted for Courtyard by Marriott and in pharmaceutical surveys. Wind Tr. 788-89.

106. Dr. Rossi agreed that it is sometimes appropriate to ask dental lab survey respondents about how they would allocate their purchases among brands in a conjoint survey. Dr. Rossi agreed that the selection and purchase of teeth by dental labs was an example of situations where customers split their choices among products, and that purchases of medical devices and supplies and business to business purchases are other examples. Rossi Tr. 3233-34. Dr. Rossi agreed that in these situations (and others) it may make sense to ask survey respondents to describe the allocation of their last ten or next ten purchases. Rossi Tr. 3235.

107. During the design stage, Dr. Reitman provided input into the objectives of the survey and played a role in formulating the questions that were asked, such as providing information about which brands were of interest and what the prices were for those brands. Reitman Tr. 1539. Dr. Wind typically relies on domain experts to provide information about the products and market in which he is conducting a survey. Wind Tr. 907. The prices used on the conjoint scenario base card were obtained from marketplace sources, such as the Zahn catalogue; the prices on the remaining scenario cards were determined using Dr. Wind's master experimental design. Reitman Tr. 1691; Wind Tr. 780; GX 140 at p. 8 & Ex. 2.

108. The brand variable is a summary measure that incorporates everything the respondent perceives about the specific product, such as tooth quality. Wind Tr. 782-83. Similarly, terms such as "local dealer" were deliberately left undefined so that the specific interpretation was left to the respondent. Wind Tr. 786. A dealer in one location can be local

to one lab and mail order for another under this survey design. Wind Tr. 786-87; Reitman Tr. 1693-94.

109. Professor Wind disagreed with the assertion of Dentsply's counsel in her opening statement that the survey asked labs- - "would you like to buy from a dealer or manufacturer? But it kept prices the same" -- because the survey scenario cards varied prices. Wind Tr. 792; *see* Defendant's Opening Statement Tr. 56. As Dr. Wind explained, "[t]he whole logic of the design is to provide various combinations of brands and prices and distribution options." Wind Tr. 792. He identified several of the scenario cards given to the survey respondents in which the price for Ivoclar teeth was lower when it was available only direct from the manufacturer than it was when available from a dealer. Wind Tr. 793-94.

2. Survey methodology and implementation

110. The survey was implemented according to generally accepted principles. Wind Tr. 763. Dr. Wind concluded that the specific data collection methodology used here (telephone-mail-telephone or "TMT") was the most appropriate one for the task here. Wind Tr. 762-63, 797-98. Dr. Rossi testified he would be "happy" to use a TMT approach in this case. Rossi Tr. 3135. Dr. Wind typically uses the TMT approach in the conjoint analysis surveys, as well as other studies where he is dealing with a difficult-to-reach population dispersed around the country. Wind. Tr. 798. It is a very commonly used approach by other researchers, too. *Id.*

111. The survey was conducted in 1998, during the investigation that preceded the decision by the United States to file suit in this matter. Wind Tr. 738; Reitman Tr. 1463-64. Once Dr. Wind decided to use conjoint analysis for this survey, he asked two of his colleagues

at Wharton with whom he had worked on many previous surveys, Dr. Paul Green and Dr. Abba Krieger, to work with him on this project as a research team. Wind Tr. 767.

Professional, trained interviewers with experience in marketing research conducted the interviews. Wind Tr. 799-800. The interviewers were trained specifically for this survey, including a dry-run of the questionnaire, and were monitored during both the screening and conjoint analysis phase. Wind Tr. 800.

112. Dr. Wind uses a sampling procedure to screen potential survey respondents to establish membership in the universe of interest, which is the general population to which the survey results are generalized or projected. Wind Tr. 767-69; GX 140 at pp. 4-5 & App. D, G. The universe of interest in this survey was defined as the dental lab technicians or other laboratory personnel who are responsible for the selection of plastic artificial teeth for use in making dentures. Wind Tr. 767-68; GX 140 at p.4. The screening process here was similar to those in other surveys Dr. Wind has conducted. Wind Tr. 775.

113. Once the respondents were identified and agreed to participate in the survey, they were mailed a two part survey -- Part A, which the respondents completed on their own, included a questionnaire regarding lab demographics, preferences for dealer and brand attributes, and brand familiarity, and Part B, which was the conjoint analysis task. Wind Tr. 770, 777-779; GX 140 at p. 11 & App. E; Reitman Tr. 1540. The respondents were then telephoned again several days later and walked through the conjoint task, which required them to respond to eight specific scenario cards selected from 140 different combinations of brand, price and distribution. Wind Tr. 779-82, 789-90; GX 140 at pp. 6-11 & App. C. The

instructions for completing Part B were read to the respondent - they were not provided in writing. Wind Tr. 789-90 & App. E.¹⁶

114. The survey was a double-blind study, which means that neither the interviewer nor the respondent knew the purpose or the sponsor of the survey. Wind Tr. 796.

115. Out of 2,520 calls made, 667 labs satisfied the screening requirement and qualified for the survey. Wind Tr. 771-73 & GX 140 App. G. The target number of respondents was approximately 200, which is within the range of typical sample sizes in conjoint surveys. Wind Tr. 773-74. Here, 274 of the 667 qualifying labs provided completed questionnaires, for a response rate of slightly less than 40%, which is "spectacular . . . [i]n today's environment." Wind Tr. 772-73, 776. Dr. Wind performed a statistical test of the survey data, and concluded there was no evidence suggesting nonresponse bias here. Wind Tr. 913-14. With the proliferation of telemarketing, public opinion surveys and marketing research, respondents are increasingly reluctant to participate and it is becoming more difficult to obtain representative samples. Wind Tr. 777. Dr. Rossi agreed that response rates obtained in marketing research have been declining. Rossi Tr. 3138. The response rate in most commercial marketing research surveys is between 10 and 20 percent. Wind Tr. 776. Dr. Rossi conceded he has no basis for disagreeing with Dr. Wind that low response rates are typical in marketing research. Rossi Tr. 3141-42.

¹⁶ The instructions provided, in relevant part: "Considering brand/line differences, price differences, and distribution availability differences, we'd like you to allocate 100 points across the eleven brands in such a way as to reflect the share of your total plastic teeth volume (in units) that you would place with each of these brand/lines over the next three months, given the information shown on the card." GX 140 at App. E.

116. The result of this process resulted in a final random probability sample that included those people who qualified as members of the universe, who agreed to participate, and who completed both Parts A and B. Wind Tr. 770. Because this is a random probability sample, this sample of 274 laboratories can be projected to the larger population of thousands of laboratories. Wind. Tr. 774-75; Rossi Tr. 3184 (because there are approximately 10,000 laboratories in the United States, making it impossible to know the preferences of all those labs, "[t]hat's why a survey has to be done").

117. Dr. Wind concluded that the survey was short, easy, and not complicated compared to others that he has conducted. Wind Tr. 794. He also testified that the survey was not too demanding compared to, for example, the survey he conducted for Courtyard by Marriott. *Id.* Dr. Rossi agreed that the Marriott survey was more complicated than Dr. Wind's survey in this case. Rossi Tr. 3121. The survey he conducted in this case had only three factors (brand, price and distribution), which is fewer than other surveys Dr. Wind has conducted. Wind Tr. 794-95. Also, the survey respondents here were professional buyers -- the people responsible for selecting the brands of artificial teeth the laboratory uses -- not consumers, and the task of allocating 100 points is similar to what they do in real life. Wind Tr. 794-95.

118. Professor Wind did not pretest the survey for two primary reasons. Wind Tr. 795. First, he has used this methodology in "many, many" other surveys, so there was no uncertainty regarding the straightforward instructions and scenario cards that would indicate a need to pretest. Wind Tr. 795-96. In addition, Dr. Wind and his colleagues checked frequently with the research firm conducting the survey fieldwork to check for any problems

with the data collection, and they received no complaints that respondents were having difficulty completing the task. Wind Tr. 797.

119. Typically, Dr. Wind does not pretest surveys such as this one, where the research approach and methodology have been used before and, in effect, already tested: “Basically, it’s a methodology which I used and I feel confident that consumers responding in this case would have no difficulty completing the task.” Wind Tr. 796-97. The fact that the topic or subject matter changes from one survey to another does not affect the reliability and validity of the survey design and analysis. Wind Tr. 907-08. The same survey method can be applied to any number of subject matters, and Dr. Wind does not typically pretest the format each time the subject matter changes. Wind Tr. 908. Significantly, the fact that many companies use conjoint analysis on a repeated basis suggests that the methodology is reliable, valid, and an accurate input into their business decisions. Wind Tr. 765; *see also* Wind Tr. 751-52.

120. Second, Dr. Wind did not conduct a pretest because of the real concern that Dentsply, given its dominant position in the market and salespeople calling on labs, would discover the existence of the survey during the pretest and potentially bias the results of the survey itself. Wind Tr. 796. The risk of Dentsply biasing the survey results outweighed any benefit from conducting a pretest. *Id.*

3. Dr. Rossi’s criticism of the survey and econometric analysis should not be relied upon.

121. Dentsply retained Dr. Peter Rossi to criticize Dr. Wind’s survey and both Dr. Reitman’s and Dr. Wind’s analysis of the survey results. Rossi Tr. 2998, 3114. Dr. Rossi

formed his opinion in this case after only two or three months of work on this matter. Rossi Tr. 3115. He was content simply to criticize the work of Dr. Wind and Dr. Reitman, rather than conducting a survey of his own in this case. Rossi Tr. 3151. The most appropriate method to critique and test a survey, however, is to conduct another survey to demonstrate empirically any problems, as Dr. Wind did when he evaluated the Pepsi Challenge survey. Wind Tr. 758-62. In addition to the numerous surveys he has conducted, Dr. Wind has also been retained on occasion to critique surveys conducted by others. Wind Tr. 758.

122. Dr. Rossi, however, has very limited experience designing and executing (conducting) surveys.¹⁷ Rossi Tr. 3117-3132. In addition, although he has published articles on statistical analysis, he has authored or co-authored only four publications addressing any aspect of survey methodology, and even some of those pertained only to the analysis of survey data rather than designing or executing surveys. Rossi Tr. 3115-17. Accordingly, Dr. Rossi lacks the expertise necessary to evaluate and critique the design and execution of Dr. Wind's survey, two of the "three major areas" of Dr. Rossi's opinion here. Rossi Tr. 3130-32.

(a) Dr. Rossi has had primary responsibility for conducting or executing only one survey. Rossi Tr. 3130-31. That survey was jointly sponsored by the University of Chicago, where Dr. Rossi teaches, and Sandoz Pharmaceuticals as part of the school's New Product Lab to help educate students. Rossi Tr. 3118-20. The students, rather than a survey research firm, did the actual interviewing as part of their course work. *Id.* at 3119. Dr. Rossi did not know whether Sandoz relied on or used in any way the survey results from a report his

¹⁷ Dr. Rossi testified that his use of term "survey methodology" included not only survey design and execution but also the analysis of survey data. Rossi Tr. 3117.

students prepared and submitted. *Id.* at 3121-22. Similarly, Miller Beer occasionally allows Dr. Rossi and a colleague to add questions to Miller's own surveys, which he is involved in "from an academic point of view" rather than to provide marketing research consulting advice. Rossi Tr. 3124-25.

(b) Dr. Rossi has had a primary role in actually designing one survey — the University of Chicago/Sandoz survey. Rossi Tr. 3131. In the only other three surveys where he contributed at all to the design, he was either "uncertain" whether he had any role in the survey design (credit cards survey), had a "purely advisory" role in the design (Miller Beer survey), or participated "only to some extent" in the design (*Body Time*, *Social Time* article and survey). Rossi Tr. 3123, 3125, 3131-32.

(c) The remainder of his involvement in the survey area is limited to analyzing data from a handful of surveys, providing advice to students and colleagues at the University of Chicago, or "being exposed" to people with whom he discusses surveys. Rossi Tr. 3132; *see also* Rossi Tr. 3126-30.

(d) In the only legal matter, other than this case, where Dr. Rossi has testified in connection with a survey (Free v. Peters, 12 F.3d 700 (7th Cir. 1993), he was one of three experts who testified regarding the reliability of the data generated by a survey of jury instructions that yet a fourth expert had conducted, much like Dr. Rossi's role in this case. Rossi Tr. 3127. Dr. Rossi did not design or conduct the survey at issue in Free. *Id.* at 3127. Although Dr. Rossi testified in this case that he found the survey in Free "extremely reliable" with a "100 percent response rate," on appeal Judge Posner disagreed, stating that the survey

was "so deficient" it "would not support the conclusion" that the jury instructions were confusing. *Id.* at 3128 (quoting *Free*, 12 F.3d at 705).

(e) Although Dr. Rossi stated that the 40% response rate obtained in Dr. Wind's survey "raises concern" of response bias, he acknowledged that he could not state with certainty that there actually is any response bias in the survey data used by Drs. Wind and Reitman, and he could not measure the extent of it since he had not conducted any sort of statistical analysis to address the issue, as Dr. Wind had done. Rossi Tr. 3148-51. He testified that there is no way to prove or disprove that the sample used by Dr. Wind is representative, short of doing another survey in this case, which Dr. Rossi failed to do. Rossi Tr. 3150-51.

123. Dr. Rossi is not an expert in antitrust economics, or more specifically the economics of exclusive dealing or free-riding. Rossi Tr. 3162. He has never been involved in an antitrust case other than this one. Rossi Tr. 3163. Dr. Rossi has little or no knowledge regarding the artificial tooth market or the evidentiary record in this case. Rossi Tr. 3164-68, 3171-77, 3179-80, 3182-84. In forming his opinion, he reviewed no business documents and participated in no interviews of any lab, dealer, or artificial tooth supplier, including even Dentsply, and looked at only portions of a few dealer depositions without reviewing them in detail. Rossi Tr. 3164-66. Dr. Rossi also never reviewed any completed questionnaires of survey respondents prior to forming his opinion, and knows few details about the dental laboratory business. Rossi Tr. 3168, 3180, 3182-84.

(a) Because of his near total lack of knowledge regarding the artificial tooth market, and particularly the dental laboratory business, Dr. Rossi is unable to prove that

the survey respondents were confused or unwilling to provide informative answers, as he claims they were. Rossi Tr. 3162, 3169-70, 3179. Belying his assertion that the survey respondents were confused because the term "local dealer" was deliberately undefined in the survey, Dr. Rossi does not know what participants at all levels of the tooth market -- labs, dealers, rival suppliers and even Dentsply -- understand the term to mean. Rossi Tr. 3171-78. Dr. Rossi was unaware that the term local dealer is commonly understood in the dental laboratory supply business; for example, Robert Brennan testified that the term local dealer was "pretty common in the industry." Brennan Tr. 1712-13; Rossi Tr. 3171-72. Dr. Rossi also conceded that Zahn's use of the term "local service for teeth from coast to coast" in its catalogue was not intended to confuse its customers, and that Zahn expects its customers to understand the meaning of "local service dealer for teeth." GX 160; Rossi Tr. 3172-73.

(b) Dr. Rossi's scant knowledge of the artificial tooth market also undercuts another one of his criticisms -- that Dr. Reitman's scenarios are unrelated to the market without Dealer Criterion 6. Rossi Tr. 3178. He admitted he could not identify what a "realistic" scenario would be. Rossi Tr. 3179. Dr. Reitman explained that his model analyzed the effect of Vita and Ivoclar being made available through local dealers, which only can happen if Dealer Criterion 6 is removed and those brands gain access to the dental laboratory dealer network. Reitman Tr. 3903-04. Dr. Reitman modeled one of several effects from removing Dealer Criterion 6 that he found based on the evidence in the record. *Id.*

(c) Similarly, Dr. Rossi's criticism that some respondents were unwilling to take the survey seriously, based on the two indicia that some respondents did not vary their preferences across survey cards and that some have high shares, is nothing more than

speculation. He acknowledged he did not know what respondents, even those who did not vary their preferences, were thinking in completing the survey, and knows little about dental laboratories in general. Rossi Tr. 3179-80, 3182-84. As a result, Dr. Rossi does not know whether these two indicia in fact show the laboratories' strong brand preference, as Dr. Wind believes, rather than confusion or unwillingness. Rossi Tr. 3184-85. In any event, Dr. Rossi agrees with Dr. Wind that these respondents should be included in the data set. Rossi Tr. 3185-86.

(d) Dr. Rossi was unaware of the existence of surveys Dentsply commissioned or conducted in-house, on which it relied to make business decisions, that had response rates lower than the rate in Dr. Wind's survey. Rossi Tr. 3143-47 (1992 Division name survey: 25% and 26% response rates; 1991 Company image survey: 7% and 17% rates; 1994 Vita lab shade survey: 31% rate). Dentsply relied on each of these surveys in the course of its business: to change the name of the York Division to Trubyte (Rossi Tr. 3144-45); by Christopher Clark when he became General Manager to understand the brand equity of Trubyte products (Rossi Tr. 3145; Clark Tr. 2494); and again by Mr. Clark to determine that Dentsply needed Vita-shaded teeth (Rossi Tr. 3146-47; Clark Tr. 2497-2500).

4. Dr. Wind's Analysis of the Survey Results

124. Dr. Wind's analysis of the survey results demonstrated that when Vita and Ivoclar teeth were available to dental laboratories from either a local dealer, or from both a local dealer and mail order dealer, rather than being available only directly from the manufacturer, their relative market shares would increase by as much as 24 to 35 percent for Ivoclar and 10 to 32 percent for Vita. Wind Tr. 763, 803-04; GX 140 at 14-15. Dr. Wind

concluded that a 10 to 35 percent share increase for a brand is "incredibly significant." Wind Tr. 804.

125. Dr. Wind used a PRIDEM/PRIDEL model to analyze the survey data. Wind Tr. 801. The model has been subject to peer review, and has been widely used by a number of companies and professional research houses. Wind Tr. 802-03. Dr. Wind testified that confidence intervals typically are not provided for any conjoint analysis applications, including both the most popular software, Sawtooth, and PRIDEM, the model Dr. Wind used here. Wind Tr. 904-05. It is impossible to calculate confidence intervals for the PRIDEM model. Wind Tr. 904. Dr. Rossi agrees it would require a very complicated fitting strategy and is unlikely that standard errors can be developed for PRIDEM. Rossi 3215-16. Instead, in Dr. Wind's and all other conjoint analysis studies, the survey results are presented to the client company itself to assess if the results are managerially significant. Wind Tr. 905-06. He concluded that the model is reliable based on its wide and repeated use by those companies to make key business decisions worth millions of dollars, its use in teaching marketing research, and the fact that it is widely publicized in the professional literature. Wind Tr. 915-16.

5. Dr. Reitman's econometric analysis of the survey results is more reliable than that conducted by Dr. Rossi.

126. Dr. Reitman used a multinomial Logit model to evaluate the survey data. Reitman Tr. 1541. The multinomial Logit model is appropriate because it was designed for situations, such as the one here, where customers are selecting among a discrete set of choices. Reitman Tr. 1541, 3888, 3890-92, 3894. The logit model has been discussed frequently in

refereed journals. Reitman Tr. 1542. Dr. Reitman himself has authored an article using a logit model similar to the analysis he did in this case, has used logit models in other cases in which he has been involved, and has reviewed the work of outside economists who used logit models. Reitman Tr. 1450, 1461. The logit model also has been applied frequently in disciplines and contexts other than antitrust investigations. Reitman Tr. 1461-62.

127. Although he criticizes the use of a Logit model here, Dr. Rossi states in one of his publications that Logit models perform well with aggregate market share data, and can perform exceptionally well when fit to the aggregated choices of many different consumers. Rossi Tr. 3212-14.

128. Logit models are used for analyzing conjoint survey data in several leading statistical analysis software packages. Reitman Tr. 3893. For example, Sawtooth software, the leading commercial software package for analyzing conjoint data (Rossi Tr. 3231; Wind Tr. 803, 904-05), has an application for using Logit models to analyze conjoint data using exactly the same procedure Dr. Reitman used here. Reitman Tr. 3893.

129. In addition, a paper recommending Dr. Reitman's Logit model over the one Dr. Rossi used, titled "Modeling Constant Sum with Logit: A Comparison of Four Methods," was presented at the 2001 Sawtooth software conference. Reitman Tr. 3893; Rossi Tr. 3231, 3238. Dr. Rossi is familiar with the paper itself and with both authors, one of whom provided data for a recent paper of his. Rossi Tr. 3231-32. The article compared four methods for using Logit models to analyze constant-sum conjoint data from surveys of customers who split their choices among products, such as the one conducted by Dr. Wind in this case. Rossi Tr. 3232-35; Reitman Tr. 3892. Method one ("Winner-take-all" or "WTA") discussed in the paper is

the method Dr. Rossi used to model the survey data here, and Method 3 (“Discretizing the Allocation” or “DA”) is the method Dr. Reitman used. Rossi Tr. 3235-36; Reitman Tr. 3892-93. The paper concluded that Dr. Rossi’s WTA method “ignores much of the information provided by the respondents about the strength of their preferences” and is less preferred for that reason. Rossi Tr. 3236; Reitman Tr. 3893. In contrast, the article recommended using the method employed by Dr. Reitman because it did not discard information. Reitman Tr. 3893; Rossi Tr. 3238.

130. In addition to the logit model he estimated, Dr. Rossi also estimated a linear model in this case. Reitman Tr. 3892, 3894. Just as he did in his logit model, Dr. Rossi omitted important variables from the linear models he estimated. Rossi Tr. 3225-26. Dr. Rossi teaches his MBA students that the error term in linear regression model is like a “trash can” for any variables that are left out of the model. Rossi Tr. 3226-27. His course notes also advise that if an influential variable is left out of a model, the researcher is throwing away information, which in turn can cause the model not to fit the data well. Rossi Tr. 3227. Dr. Rossi conceded that, here, throwing away these variables possibly explains why his models do not fit the data. Rossi Tr. 3230; *see also* Rossi Tr. 3237.

131. Dr. Reitman’s logit model fits the data and marketplace reality better than Dr. Rossi’s linear model in several ways. Reitman Tr. 3894, 3896. First, Dr. Reitman’s logit model captures the fact that laboratory respondents are making tradeoffs among all relevant tooth brands, rather than evaluating each brand separately. Reitman Tr. 3895. Dr. Rossi’s linear model does a separate analysis brand-by-brand. Reitman Tr. 3894. Second, Dr. Reitman’s model captures the fact that laboratories usually choose among a subset of all the

available brands, without considering the others. Dr. Rossi's linear model does not. Reitman Tr. 3895.

132. Despite his own lack of knowledge of the facts here (as discussed above), Dr. Rossi did not consult with anyone knowledgeable about the tooth market in constructing the models he estimates in his report. Rossi Tr. 3228-29. In fact, he did not even know how many brands of competing teeth there are in the United States that should be included. Rossi Tr. 3229.

133. Dr. Reitman calculated standard errors which showed that the key parameters of his model -- the effect of local dealer availability and the price sensitivity of other premium brands -- are statistically significant. Reitman Tr. 3897-99, 3908-09. Dr. Rossi purported to calculate estimated standard error ranges of his own for several of Dr. Reitman's price and share effect projections. Reitman Tr. 3910; DX 1623. Dr. Rossi's standard error calculations are not precise or reliable for several reasons. Reitman Tr. 3914. He made unsupported assumptions and used a wrong input. Reitman Tr. 3911-14. Dr. Rossi's estimates are based on 511 simulations, but change dramatically when just two of those simulations are dropped. Reitman Tr. 3913-14.

134. Dr. Reitman testified that in his position as a Justice Department economist he performs the types of price effect projections he did in this case "all the time" in antitrust analysis, and particularly in merger analysis -- "It's bread and butter for us." Reitman Tr. 3914-15. He also reviews the same kind of simulations when done by outside experts retained by the merging parties. Reitman Tr. 3915. Dr. Reitman concluded: "In my time in the Antitrust Division, I have never seen anyone present . . . estimated error ranges for these kind

of price effects” like the calculations Dr. Rossi did here. Reitman Tr. 3915. “In part, that’s just because you have to make very dramatic assumptions in order to do this and it’s not a reliable thing.” Reitman Tr. 3915. Instead, economists typically determine whether the demand parameters are statistically significant, which is what Dr. Reitman does in his other work for the Justice Department and did in this case. Reitman Tr. 3915. Dr. Rossi has never published any articles regarding the differentiated product Bertrand competition model used by Dr. Reitman to calculate the price effects in question in this case. Rossi Tr. 3219-20.

135. Dr. Rossi’s ultimate conclusion was that the survey data and analysis is “not very informative.” Rossi Tr. 3111. In light of his very limited survey experience, lack of knowledge regarding the artificial tooth market and facts of this case, and unreliable econometric analysis, this lukewarm opinion does not undercut Dr. Reitman’s conclusion that the survey verifies and quantifies his conclusion regarding the anticompetitive effects he found based on a thorough review of all the other evidence in the record over the five years he has been working on this matter.

E. The few large labs who testified during Dentsply’s case are an unrepresentative sample of the 7,000 labs in the country, and their testimony failed to rebut the statistically significant results of the Wind Survey.

136. Dentsply did not conduct its own scientific survey of dental labs. Rossi Tr. 3151. Instead, it offered the testimony of seven witnesses from labs that it selected on its own. Some of the testimony from these witnesses corroborated other evidence demonstrating the importance of dealers. Langer Tr. 3279-80 (values relationship with DLDS); Obst Tr. 2748 (“exceptional service and relationship that has been built up” with Zahn). None of it

actually sustained Dentsply's argument that dealers are not important. To the extent any of these witnesses were offered to show that their individual, particular purchasing preferences should be generalized across the market, that testimony should not be credited because these labs do not constitute a representative sample of dental labs in the country. They were hand picked to testify by Dentsply. Moreover, the witnesses were selected from some of the largest laboratories in the country. They were not shown to be a representative sample of even that segment of the lab industry; but, even if they were, large labs represent only a small percentage of the dentures fabricated in the United States.

137. Dentsply's "sample" is skewed one because most of its trial witnesses represent very large labs. A large share of the denture fabrication in the United States is done in 2,000 - 3,000 mid-size labs that make 5-15 dentures per day. Jenson Tr. 2247-48. Moreover, approximately 80% of the labs in the United States are small, employing four or fewer lab technicians. Weinstock Tr. 88;

Mariacher Tr. 2895 (75% of labs employ 3-5 people);

Small labs are likely more dependent on dealer services. Turner Tr. 422; Reitman Tr. 1500-01. Five of Dentsply's seven lab witnesses came from large labs or lab groups:

(a) National Dentex is the largest publicly traded dental lab company in the United States, with 34 labs across the country and \$100 million in sales annually. Mariacher Tr. 2960, 2895-96. One National Dentex lab, Stern Empire, employs 155 people, did over \$10 million in sales annually, and employed a full-time person just to manage its tooth stock. Mariacher Tr. 2894, 2961, 2962. Its smallest lab employs over 20 people and does in excess

of \$1 million in sales. Mariacher Tr. 2895-96. National Dentex is so large that the company considered buying a dental supply house through which it could purchase teeth. Mariacher Tr. 2958. National Dentex has less need for next day service, dealer services, or a local stock of teeth because it can afford to employ personnel to handle all of these functions and its in-house inventory allows it to fulfill its inventory requirements by periodic restocking orders that do not need to be delivered the next day. Mariacher Tr. 2962-63.

(b) Dental Service Group ("DSG") owns 26 labs and had revenues in 2001 of \$52 million. Obst Tr. 2711-12. DSG employs a total of 800 persons, of which approximately 150-175 are denture technicians. Obst Tr. 2711, 2713. In addition to the 26 labs it owns, DSG has 75 affiliate labs. Obst Tr. 2714-15. These labs are also very large, in that each lab must have \$500,000 in sales in order to become an affiliate. This level of sales translates roughly into a lab with 8-10 or more technicians. Obst Tr. 2739.

(c) Lord's Dental Studio is one the top 10 largest dental labs in the country, and has the largest inventory of teeth in its region. Lord's employs over 100 technicians, 25-27 of whom work on dentures. Challoner Tr. 2859-61. Lord's is "one of the larger full-service laboratories in the United States." Challoner Tr. 2861.

(d) Armstrong Laboratory is a large full-service dental lab employing 30 dental technicians. Armstrong Tr. 2330. It makes about 15,000 full and partial dentures in a year, averaging out to about 300 per week. Armstrong Tr. 2332. In 1999, it maintained the largest tooth stock inventory in the entire Commonwealth of Kentucky, not just for Dentsply, but for all other brands of teeth that it stocked. Armstrong Tr. 2369. Armstrong is a member of TEREC, a group of 14 very large laboratories. Armstrong Tr. 2351-52. The other labs in

the TEREK group, however, are even larger than Armstrong Lab. "[T]hey are much larger than I am. As a matter of fact, I am the smallest by sales in TEREK, substantially smaller."

Armstrong Tr. 2352.

(e) Jaslow Dental Lab employs 38 persons, including eight denture technicians (not counting Mr. Jaslow himself). Jaslow Tr. 1959. Jaslow is one of the top 100 largest labs in the country, by number of dental technicians. Jaslow Tr. 2016. Jaslow carries a large inventory of Dentsply teeth -- large enough so that it can satisfy its tooth needs from its own inventory in 99% of the cases. Jaslow Tr. 2037.

138. While Hopkins Dental Lab in Minnesota is not large, neither is it representative of most other labs with respect to its need for dealer services when purchasing teeth. It has little need for a dealer for his Ivoclar teeth because of its large in-house stock of Ivoclar teeth, valued at \$25,000. Coykendall Tr. 3313. This stock of Ivoclar teeth is sufficiently large that it can obtain between 90%-95% of the teeth it needs for its denture cases from that stock. That convenience is one reason its owner, Mr. Coykendall, uses Ivoclar teeth. Coykendall Tr. 3330, 3333.

139. With 7,000 labs doing dentures in the United States, it is not surprising that labs are very heterogeneous in their preferences. Reitman Tr. 1484. The United States offered the testimony of single lab owner to explain how a dental lab operates and to illustrate how consumer choice and purchasing patterns have been affected by Dentsply's exclusionary conduct. Ryan Tr. 1252, 1255 (would buy more Ivoclar and Vita teeth if DLDS could sell them). But it did not, as Dentsply did, rely exclusively on a small, non-scientific sample of

unrepresentative lab witnesses. Dr. Wind's survey is the best evidence of the preferences of labs and how they would alter their tooth purchases in a world without Dealer Criterion 6.

F. Direct distribution of artificial teeth is not an adequate substitute for a network of dental laboratory dealers.

140. Selling teeth directly to labs is an inferior method of distribution primarily because the benefits to customers and suppliers from buying or selling through tooth dealers are not available to direct sellers or their customers. Reitman Tr. 1508; GX. 364-C, GX 364-D. Even though direct sellers do not have to pay the standard 35% dealer margin, they also have to incur certain costs that Dentsply, selling through dealers, does not. There is also very little, if any, benefit to selling both teeth and crown and bridge products through the same direct sales force. The inferiority of direct sales is also illustrated by the poor track record of Dentsply's competitors and Dentsply's own decision not to "go direct" after years of talking about it and studying the issue.

1. Direct sales are costly and inefficient.

141. Although a direct-selling supplier does not have to pay any dealer margin, it incurs significant additional costs associated with the services that otherwise would be handled by a dealer such as accounting, accounts receivable, billing, returns, and taking orders. Swartout Tr. 1305-07; Reitman Tr. 1510. As a result, it is not at all clear that it is cheaper for a supplier to sell direct rather than through dealers. Desautel Tr. 2466;

Nordhauser Tr. 4111-12. In fact, there is evidence in the record that suggests that selling direct is more expensive. Wiltz Tr. 3835; Swartout Tr. 1305-08; Reitman Tr. 1510.

142. Dentsply concedes that direct sales involve additional costs.

143. Dentsply's competitors, the ones that currently sell directly, believe that direct sales are more costly. Despite the dealer margin, Myerson's president believes that using dealers is more efficient:

I believe that selling through a network of distributors, both those local, regional and national, is the most efficient way to serve the United States due to its sheer size. And the reason that's an advantage to us is that it helps us reduce our operating expenses and invest more in sales and marketing.

As I said before, with a network of dealers, you are serving a smaller base of customers, makes it easier for collection. You are able to take advantage of them doing cooperative sales and marketing efforts, thereby sharing costs.

Swartout Tr. 1306-07.

Whitehill Tr. 251-52 (even without dealer margin, direct sales less effective because it results in far lower volume).

144. Dealers believe direct sales are more costly as well. Steve Desautel of Accu Bite Dental Supply, a witness Dentsply called during its case, believes it is a "fallacy" to assume that it is cheaper to sell teeth directly. Desautel Tr. 2466 (not necessarily cheaper to cut out "the middle man"). *See also* Nordhauser Tr. 4111-12 (Darby incurs substantial costs for supplier, and "[t]he tooth manufacturer has a heavier load, if you wanted to go direct"); Wiltz Tr. 3835 (costs of selling teeth directly are high, and doesn't believe Dentsply would go direct).

145. Another one of Dentsply's own lab witnesses, George Obst of DSG, testified that he buys most of his Myerson teeth from Zahn Dental, rather than from Myerson directly, because they are cheaper under Zahn's preferred purchasing program. Obst Tr. 2752-53. Nor does he know whether Dentsply's prices would be cheaper if Dentsply went direct. Obst Tr. 2750-51 (never talked price with Dentsply, and if price were the same, would continue buying from Zahn rather than from Dentsply directly).

146.

2. There is little, if any, benefit to selling teeth through the same direct sales force selling crown and bridge products.

147. All major crown and bridge manufacturers, including Dentsply, sell these products directly. Clark Tr. 2542; Ganley Tr. 1109-10; Whitehill Tr. 394; Reitman Tr. 1478-79.

Dentsply has taken contradictory positions as to whether a combined sales force is an advantage or disadvantage for selling teeth. At times, Dentsply tried to establish that the lack of a separate sales force focused solely on selling teeth was a disadvantage for its competitors. Whitehill Tr. 297-98. At other times,

Even if there is such a benefit, however, it is outweighed by the substantial benefits of selling teeth through dealers.

148. The tooth business is different from the crown and bridge business, and the two have historically been distributed differently. "Crown and bridge products are bought through several sources, but most of them are direct products. The main people in the marketplace are

selling direct, ... The tooth business in general, though, is a dealer-purchased product. They buy it from the dealer. They rely on the dealer representative. They understand the dealer service. And they provide a very good service." Ganley Tr. 1109-10.

149. There are significant differences in the service levels required for teeth and crown and bridge products. As Vident's Wayne Whitehill noted, teeth are purchased much more frequently:

A laboratory who is buying denture teeth directly from us will place orders very, very often, sometimes even — even daily, because they're usually only ordering per case. Whereas with a laboratory that's buying crown and bridge materials, they're buying bottles of porcelain and that's like carrying a small inventory. So they don't order as often.

Whitehill Tr. 394-95.

150. There are differences in the products. Porcelain is sold directly "because of the high cost of the system and also because of the technical complexity of [the] product."

Reitman Tr. 1478-79. Precious metals used in the production of crowns and bridges are sold directly because of the high inventory costs associated with them. Reitman Tr. 1478; Becker Tr. 1833. And dealers are sometimes reluctant to sell precious metals such as gold because of the greater credit risk of selling such an expensive product to dental labs. Weinstock Tr. 509.

151. There are also differences in the customers as well. The labs that do crown and bridge work usually do not also do denture work. Only 7,000 of the 16,000 dental labs in the United States even do dentures. Weinstock Tr. 86; Jenson Tr. 2247; Reitman Tr. 1484. The

remaining 9,000 are exclusively crown and bridge labs. Weinstock Tr. 86 (over 50% of U.S. labs do only fixed work). Even among the 7,000 labs that do dentures, there are some, like Judd Ryan's Sonshine Dental Lab, that do not do any fixed work. Ryan Tr. 1205-08, 1248. And among full-service labs, there are those, like Langer Dental Arts, where the denture department and crown and bridge department are separate and the lab personnel who purchase denture materials are different from those who purchase crown and bridge materials. See Langer Tr. 3250, 3293-94.

152. These differences mean that there are few synergies to selling teeth and crown and bridge products through the same sales force.

3. Despite substantial efforts to overcome the disadvantages of selling teeth directly, Dentsply's competitors have failed to become effective competitors to Dentsply.

153. Dentsply has recognized that the key weakness of its competitors is their lack of a dealer network and resulting limited distribution. DX 115 at DS 018478 (listing first two weaknesses of Myerson as "Limited Distribution" and "Few Full Service Dealers"); GX 77 at DS 015927 (Vita is "having a tough time getting teeth out to customers. One of their key weaknesses is their distribution system");

Indeed,

Dentsply's Steve Jenson has directed his Trubyte sales staff to reinforce to dentists and labs

the service advantage of a dealer network versus a manufacturer's direct tooth sales. Jenson Tr. 2268.

154. Each of Dentsply's major competitors have tried, but failed, to overcome the disadvantages of selling teeth directly.

a. Ivoclar

155. Ivoclar's primary difficulty has been its lack of access to dealers. As its president Robert Ganley testified, that lack of dealer distribution is:

a distinct disadvantage because the market is used to buying dealer. The market is comfortable buying dealer. The dealer does a very good job for the dental laboratory and for the dental school, for the customer in terms of shipping, in terms of insurance and in terms of general service, servicing a tooth stock, servicing an existing account. It's what they're comfortable with. And we don't sell through dealers. We try to accommodate, we try to meet those needs in other different ways, because we're locked out. The market knows we're locked out. I think we do a reasonably good job to meet some of their criteria, but we don't meet all their criteria. And that's ... the largest problem we have in the market.

Ganley Tr. 1120.

156. Ivoclar has tried several different strategies to overcome this difficulty.

(a) In the early 1990's, it tried to replicate the advantages of having a network of local dealer tooth stocks by establishing regional distribution centers for teeth. Ivoclar began with three such centers, located in Atlanta, Sacramento, and in Illinois. Ivoclar's sales of teeth did increase in the areas surrounding these centers, providing additional evidence that labs prefer to buy teeth from local tooth stocks. The centers were not profitable, however, because it was too costly to operate them for just a single product. After approximately two years, Ivoclar closed the centers, to the disappointment of lab customers

who had enjoyed more local access to Ivoclar teeth. Ganley Tr. 1008-10; Reitman Tr. 1509-10.

(b) On a number of occasions in the 1990's, Ivoclar tried consigning teeth to labs. Consignments have not succeeded in increasing tooth sales, however, because tooth inventories require service frequently, such as on a weekly basis, in order to identify the tooth lines that have been used, reorder teeth, restock inventory, and to collect and process teeth that need to be returned to the manufacturer. Ivoclar does not have the sales representatives to accomplish the task. Therefore, while Ivoclar will consider a tooth consignment if requested by a lab, it no longer has a formalized program by which it consigns teeth to labs. Ganley Tr. 1010-11.

(c) Ivoclar has tried to discount the price of its teeth, both to individual labs and to broader-based laboratory chains. In general, this has not been effective in increasing tooth sales. Ganley Tr. 1011-12.

(d) Ivoclar has tried to sell its teeth to dental schools, without much success. The lack of a dealer network is a major reason why:

The dental school, the dental school tooth stock requires [a] significant amount of service. It can be a high-volume location in terms of a lot of teeth being used, a lot of teeth being withdrawn, a lot of teeth being returned. Therefore, it necessitates [a] reasonably high service level, and that's a level that we, as a company, have not been able to provide. But, on the other hand, dealers have a good reputation for servicing the tooth stock in the [universities].

Ganley Tr. 1017.

(e) Ivoclar tried to increase tooth sales by combining its tooth sales force with the sales force selling its popular crown and bridge products. It did so because it felt it

could be effective with its tooth products based on the existing relationships it already had with existing crown and bridge customers. Yet this initiative was only modestly successful. Ganley Tr. 1017-18, 1111 (“[w]ith some laboratories, it did work on increasing some of the business”).

(f) Perhaps most significantly, in the past four years, Ivoclar has tried to mimic the success of Dentsply’s sales force that is dedicated solely to selling removable products. Ivoclar even hired one of Dentsply’s own tooth salesmen, Herb Baird, who had a good reputation among the labs in his region, to lead that effort. Once he joined Ivoclar, Baird began recruiting people to build his sales force and he began selling teeth himself as well. This effort has failed as well, however, because the small increase in sales has been outweighed by the costs of creating a separate sales force focused on selling only one product. Ganley Tr. 1018-1021.

157. Because it does not believe that direct distribution is the most effective way to sell teeth (Ganley Tr. 1006-07), Ivoclar has tried, unsuccessfully, to obtain distribution through dealers. Ivoclar executives have continually talked to Zahn and Patterson about their interest in selling Ivoclar teeth. Ganley Tr. 1021. Ivoclar has not approached more dealers selling Trubyte dealers than it has because there is no reason to expect, having heard from large dealers that they are not willing to lose their Trubyte tooth business, that smaller dealers would be willing to risk losing that business. Ganley Tr. 1107-08.

b. Vident

158. Like Dentsply's other competitors, Vident has found direct distribution to be an ineffective method of competing in the tooth market. Whitehill Tr. 240, 249-50.

159. Vident has tried several different strategies to overcome the disadvantages of selling directly.

(a) For many years, Vident has shipped teeth to labs on an overnight basis, so that labs can receive teeth the day after they order them. Whitehill Tr. 250. More recently, Vident has even subsidized the cost of next-day delivery, so that now Vident pays most of the overnight shipping charge. Whitehill Tr. 250.

(b) Vident, like Ivoclar, has tried to consign teeth to labs. It has even tried to sell or consign a larger inventory of teeth to dental labs, so that they have less need for more frequent purchases. These efforts have not been successful because these inventories have not been properly managed by the lab customers. Whitehill Tr. 252-53. In addition, Vident has not been able to visit those labs frequently enough to manage the inventory. Whitehill Tr. 252.

(c) Vident's sales reps call on dental schools, but have not had much success in selling Vita teeth to those schools. Like Ivoclar, Vident has found that dental schools are particularly dependent on dealer services. Quite often, a dental school will have a tooth stock or dealer store located directly on campus. That increases the convenience of the dental school buying teeth, as well as other products, from the dealer. Whitehill Tr. 254-55.

(d) Vident has tried to exploit its key competitive advantage — the tremendous popularity of the Vita Classical Shade Guide. Whitehill Tr. 231-32. "One of the significant things that Vident does is to wrap all of its products around its shade guide."

Whitehill Tr. 228. “[W]e oftentimes market the shade guide with a circle of products around the shade guide because all of these products match the shade guide.” Whitehill Tr. 233.

160. Vident’s efforts to find dealer distribution have been continuous and exhaustive.

(a) Vident has made ongoing efforts over the years to obtain distribution through a national tooth dealer. Whitehill Tr. 255. In February 2002, Vident’s Wayne Whitehill, personally offered the Vita tooth line to Patterson Dental. Patterson rejected that offer, to Mr. Whitehill’s understanding, because it did not want to disrupt its relationship with Dentsply. Whitehill Tr. 255, 258. Zahn has similarly rejected Vident’s overtures. Whitehill Tr. 259.

(b) Vident has made numerous efforts over the years to obtain distribution through a regional tooth dealer. During the mid-1990’s, Vident did sell teeth to Dental Technicians Supply (“DTS”) and Jan Dental, two regional dealers that were effective tooth dealers for Vident. Whitehill Tr. 259-64. Both, however, dropped the Vita tooth line when forced to do so as a requirement of obtaining the Trubyte tooth line from Dentsply. Whitehill Tr. 263, 265. Vident has also contacted, and made efforts to sell teeth to, several other regional tooth dealers: Atlanta Dental; Pearson Dental; Darby Dental; Benco; J.B. Dental; and Meer Dental. Whitehill Tr. 265-69.

(c) Vident has made numerous efforts over the years to obtain distribution through more small, local dealers. Dealers that do not already sell Trubyte teeth are smaller and less able to provide services benefitting customers. PFF ¶¶ 258-62. Moreover, there are

not that many other dealers in the market today that sell products to dental labs. Whitehill Tr. 270.

(d) Lincoln Dental, which has never been a Trubyte tooth dealer, was approached twice by Vident. On the first occasion, Vident turned down Lincoln because it had just lost its sales force. Whitehill Tr. 268. On the second occasion, Lincoln turned down Vident because it wanted to earn a higher margin on the sale of Vita teeth. DiBlasi Tr. 2814. Lincoln, however, considered Vident's proposal to be a reasonable one at the time. As Jeff DiBlasi of Lincoln Dental testified, "they [Vident] needed us more than we needed them. ... so they were willing to do anything possible." DiBlasi Tr. 2814. Indeed, Vident offered Lincoln assistance in the way of co-traveling, sales aids, marketing materials, and training. DiBlasi Tr. 2813.

c. Myerson

161. When it was part of the larger Austenal Corporation, Myerson added local tooth stocks to distribution centers that Austenal had for other products in Orlando, New York, and Los Angeles. Swartout Tr. 1299. These centers allowed Myerson to offer local availability of teeth (and many other products) and provided Myerson with additional marketing opportunities for teeth, such as point-of-purchase displays that customers would see when they came into the center to pick up other products. Swartout Tr. 1300. When Dentsply acquired Austenal in early 2002, however, Myerson lost these distribution centers and has lost business as a result. Swartout Tr. 1302. Myerson is unable to establish tooth distribution centers today because it is not economical when teeth are the only product sold through them.

Nor is it feasible for Myerson to ship all orders overnight due to the high cost of services like Fed Ex. Swartout Tr. 1303.

162. Myerson has expended considerable effort to recruit dealers. When Mr. Swartout began with Myerson when it was part of Austenal, he sat down with other managers and tried to identify every laboratory-focused dealer in the country -- those that "were recognized by laboratories" and understood selling teeth. Swartout Tr. 1312-13. Myerson then visited those at the top of the list to convince them to take on the Myerson lines. However, "each time" these dealers, which sold Trubyte teeth, refused to take on the Myerson line. Swartout Tr. 1313-14.

4.

163.

164.

165.

166.

REDACTED

167.

(a)

(b)

REDACTED

IV. Dentsply has willfully maintained its monopoly in the artificial tooth market in the United States in violation of Section 2 of the Sherman Act.

A. Dentsply possesses monopoly power in the artificial tooth market.

168. For at least the past 15 years, Dentsply has had monopoly power in the artificial tooth market. Reitman Tr. 1473. As explained below, this is evident from its persistently high market share, between 75% and 80%; its ability to control price and exclude its closest competitors from the dealers necessary to compete effectively; its high margins and profits; its reputation among many labs and dealers in the industry; and its ability, in the early 1990's, to sell aesthetically inferior teeth at higher prices without losing substantial market share. Dentsply's exclusionary conduct has excluded some competing tooth brands entirely, delayed the entry of others, and prevented the ability of those already in the market to expand their sales successfully.

1. Dentsply's market share of between 75% and 80% is sufficient to infer monopoly power.

169. Dentsply has had a persistently high market share, between 75% and 80% on a revenue basis, in the artificial tooth market. Reitman Tr. 1471-72.

170. Dentsply's market share is approximately 15 times larger than its next closest competitor. Ivoclar has the second-highest share at the market, at approximately 5%.

Reitman Tr. 1472; Ganley Tr. 984-85 (Ivoclar's president estimating a 8% share of premium segment). The shares of Vita and Myerson are in the 3% range. Reitman Tr. 1472;

The American Tooth

Company has a 2% share, Universal's share is between 1% and 2%, Heraeus Kulzer has a share of about 1%, and various other rivals have even smaller shares. Reitman Tr. 1472; see

also Reitman Tr. 1471, 1474 (Dr. Reitman's estimates are based on internal documents and sales data produced by Dentsply and other companies, Dr. Wind's lab survey, and Dentsply's own internal survey data).

171. The market share surveys commissioned by Dentsply demonstrate that it has held a share of approximately 80% for at least the past 10 years.

(a) Since 1989, the Trubyte Division, through Sam Thumim, its Manager of Market Research, has commissioned three surveys of tooth market shares performed by outside firms: the Market Dynamics survey in 1989; the Axxiom Research survey in 1991; and the Polk-Lepson survey in the mid-'90's. Thumim Tr. 928-29, 943-44, 973.¹⁸

(b) Mr. Thumim was involved in retaining these outside survey firms and believed that the survey results were reliable. Mr. Thumim was involved in both retaining Market Dynamics and in designing the survey. Thumim Tr. 929. He described that survey as "by far, the most comprehensive, sophisticated and complex survey we have ever conducted." GX 17 at DS 053918, Thumim Tr. 933. Similarly, Mr. Thumim was responsible for retaining Axxiom Research and described that firm as having "a proven track record of conducting Dentsply surveys." GX 18 at DS 054027, Thumim Tr. 941-42. He was also involved, along with Chris Clark, then Trubyte's director of sales and marketing, in retaining Polk-Lepson and in designing that survey. Thumim Tr. 973-74.

¹⁸ Mr. Thumim has been Manager of Market Research for the Trubyte Division since 1969. (Thumim Tr. 918-19) Mr. Thumim takes part in the design and execution of market research surveys for the Trubyte division, retains outside survey vendors and participates in designing outside surveys, analyzes the results of outside surveys, and prepares reports of such surveys and analyses to circulate to others within the Trubyte division. (Thumim Tr. 919-21) In his career at Dentsply, there has never been a time when Mr. Thumim has not had responsibility for market research about tooth products. (Thumim Tr. 924-25)

(c) Mr. Thumim's analysis of the Axxiom survey results showed that Dentsply had a 80% market share. In November 1991, he reported his analysis of the Axxiom survey results in a series of charts dated November 20, 1991. GX 20, Thumim Tr. 952-53. His analysis showed Dentsply's market share (by sales dollars) to be 80%. Vita's share was 2.4%, and Ivoclar's was 2%. GX 20 at DS 053579; Thumim Tr. 958-61. He also concluded that Dentsply's tooth market share by units was 67%, and that Vita's unit share was 1.32%, and Ivoclar's was 1.32%. GX 20 at DS 053583; Thumim Tr. 963-64. Dentsply's dollar market shares are higher than its unit market share because sales of premium teeth, in which Dentsply has an even greater share, have a greater influence than sales of economy teeth, because premium teeth are priced quite a bit higher than economy teeth. Thumim Tr. 962-63.

(d) A year later, Mr. Thumim prepared and distributed another analysis of tooth market shares, in a series of tables dated September 23, 1992 and charts dated September 25, 1992. GX 23A; Thumim Tr. 965-68. He concluded that Dentsply's market share (by sales dollars) was 81%, and that Vita's share was 2.47% and Ivoclar's was 2.0%. GX 23A at DS 054129; Thumim Tr. 971-72.

(e) These surveys also showed that Dentsply's share of the premium tooth segment was at least 80% and, in some cases, close to 90%. In 1989, the Market Dynamics Survey showed that Dentsply share of the premium tooth segment was 85% (for anteriors) and 81% (for posteriors). GX 17 at DS 053928; Thumim Tr. 935-38. It also concluded that "since Dentsply dominates all segments and Dentsply's sales have been flat, this suggests that the overall market is currently relatively stable." GX 17 at DS 053928, Thumim Tr. 938.

Thumim Tr. 942-44, 946-47, 948-49. The Polk-Lepson survey in the mid 1990's reported "comparable" results. Thumim Tr. 975-77.

(f) Because Dentsply opted not to cross-examine Mr. Thumim and has not offered any evidence to rebut his findings, Mr. Thumim's testimony and conclusions regarding Dentsply's market share stand uncontradicted.

172. Knowledgeable industry executives concur in the view that Dentsply's market share is approximately 80%. Whitehill Tr. 240; Nordhauser Tr. 4145-46. *See also* Cavanaugh Tr. 727-28 (Dentsply CEO told Cavanaugh, when he was adding Ivoclar tooth line, that "Dentsply was the worldwide leader of teeth and, in the United States especially, they owned the tooth market");

2. Dentsply has controlled price in the tooth market.

173. Dentsply has been the price leader in the artificial tooth market. Swartout Tr. 1296; Turner Tr. 456. William Turner, who was the Senior Product Manager for Trubyte's tooth products from 1993 until earlier this year, Turner Tr. 401-03, described the process by which Dentsply established prices in the market: "As the price leader, Dentsply usually sets the prices in the marketplace and everyone else contributes or competes under that broad umbrella." Turner Tr. 456. The current General Manager of the Trubyte Division, Steve Jenson, similarly testified that Dentsply's pricing of its premium teeth offers an opportunity for other tooth brands to come in underneath what they would consider the right price — in effect, providing other brands a price umbrella. Jenson Tr. 2217.

174. In setting the level of this price umbrella, Dentsply consults the consumer price index for medical and dental materials, or possibly other indexes of inflation. Turner Tr. 456-57 (can't recall any other factors taken into account). Since 1997, Dentsply has typically increased its prices by a point, to a point and a half, over inflation. Turner Tr. 457-58; accord Jenson Tr. 2216 (Dentsply has increased its tooth prices slightly above inflation; "[y]es, within that 3- to 4-percent range").

175. Dentsply has not set its own prices by referencing the prices of competitors. Turner Tr. 456 (can't recall any factors used other than inflationary indexes). Competitors' prices have been consulted, "just to be aware what the marketplace was doing." Turner Tr. 456.

176. Dentsply has had the highest prices in both the premium and economy segments. In the premium segment, Dentsply's prices have been about 10-15% higher than the prices of both Vita and Ivoclar (and probably at least that much above Myerson). Turner Tr. 453. In the economy segment, Dentsply's prices have been about 10% higher than Dentorium's, the competitor with the next-highest prices. Turner Tr. 453-54.

177. Dentsply has not reacted with lower prices when others have not followed its price increases. As Myerson's president James Swartout testified, Myerson's prices have remained unchanged in the past two to three years. And yet Dentsply has not "changed [its] behavior because of my failure to raise prices." Swartout Tr. 1296.

178. Dentsply has had a reputation for aggressive price increases in the market. Clark Tr. 2650 (in the early 1990's, some labs and dealers felt so). In his July 1993 monthly report to David Pohl, Regional Sales Manager Edward Jilek stated that, "we need to moderate

our increases — twice a year for the last few years was not good!” GX 42 at DS 024274.

This reputation persists today. Certain dealers selling Trubyte teeth, including Dentsply’s largest dealer Zahn Dental and its third-largest Darby Dental, perceive that Dentsply’s prices create a high-price umbrella. Jenson Tr. 2219-20.

3. Dentsply has excluded its competitors from the dealers necessary to compete effectively in the market.

179. Dentsply’s monopoly power is also evident from its ability to exclude its competitors from the dealers necessary to compete effectively. In at least the past 15 years, no dealer has agreed to walk away from its Trubyte tooth business to take on a competitive line. Reitman Tr. 1514-15; Jenson Tr. 2287; Clark Tr. 2631; Pohl Tr. 1907.

180. Dealer Criterion 6 imposes an “all-or-nothing” choice on dealers selling Trubyte teeth: if a dealer wishes to add the teeth of a competitor, it loses all of its Trubyte tooth business. Reitman Tr. 1514. In some instances, Dentsply has also taken away, or threatened to do so, its Trubyte merchandise business from dealers that violated this policy. Brennan Tr. 1720 (terminated Frink Dental as both a tooth and merchandise dealer because Dentsply “wanted to make a strong point”); Vetrano Tr. 1426-27 (DLDS threatened with loss of both teeth and merchandise).

181. Each tooth dealer confronted with this all-or-nothing choice has agreed to comply with Dealer Criterion 6 and not add the teeth of Dentsply’s competitors. This is because these dealers concluded that they could not afford to lose the Trubyte tooth line, which is larger than any other competitive line. Reitman Tr. 1476-77. *E.g.*,

Harris Tr. 615-16 (didn't take on Vita because Dentsply represented 90% of Atlanta Dental's \$1 million tooth revenue and "I didn't want to jeopardize my company or myself in that way"); Nordhauser Tr. 4107 (agreed to drop Vita line from New York office because Dentsply "is the major line in this country" and "I would not jeopardize losing that line to take another line, okay?").

4. Dentsply's margins are consistent with a finding of monopoly power.

182. Dentsply's average margin on all of its tooth products is approximately
Its margin on its premium anterior teeth is approximately Reitman Tr. 1474-76; *see also*
Jenson Tr. 2237 (gross margins for Portrait and Bioform above

183. Dentsply's margins on its tooth products are higher than its margins on other products. Compared to other businesses, Trubyte has "excellent margins." Jenson Tr. 2234. For example, Trubyte's margins for teeth are high relative to its margins for merchandise products. Jenson Tr. 2227. From 1999 through 2001, while Trubyte premium tooth margins were around the gross margin for Trubyte merchandise sales hovered around DX 1625 at 200263-64; Jenson Tr. 2239.

184.

185. When products earn high margins, there is more profit per unit sold. Reitman Tr. 1477. As a result, even small changes in market share are significant because they have a large impact on overall profits. Reitman Tr. 1477.

186. By comparison, the margins of Dentsply's competitors are lower. *E.g.*, Whitehill Tr. 372-73 (Vident's margins are for some products, for others); Swartout 1320-21 (gross profit margin on teeth sold in the United states is approximately).

5. Dentsply's tooth business is a "cash cow," with high profits that have funded corporate activities outside the tooth market.

187. Dentsply's tooth business has long been a highly profitable, "cash cow" business. Jenson Tr. 2223 (Trubyte makes a lot of money for Dentsply corporation). This profitability has incited Dentsply to use policies, such as its exclusive dealing agreements, that inhibit competition and avoid competition on the merits in order to protect those profits and its monopoly power. Reitman Tr. 1474, 1477.

188. There is no real dispute about the incentives created by these high profits. In 1996, the Trubyte Division's Long Range Plan stated that

189.

Over the years, the Dentsply corporation has used the profits from the Trubyte "cash cow" to grow through acquisitions of companies outside the artificial tooth business. Jenson Tr. 2221-23 (large acquisition of Degussa did not include any tooth products).

6. Dentsply's reputation in the industry, among many labs and dealers, supports a finding of monopoly power.

190. Dentsply's high market share is not, as Dentsply claimed at trial, solely the result of superior products and marketing. Indeed, the Trubyte tooth business has had a reputation among many labs and dealers in the industry that corroborates the finding that Dentsply is a monopolist that has not responsive to the concerns of dealers or labs.

(a) In 1993, Dentsply was viewed as "dictatorial and arrogant" among most of its lab customers. DX 653 at DS 005170 (feedback "consistent across much of our customer base").

(b) In a June 1995 memorandum, Ronald Zentz, Dentsply's Education Department, wrote that

(c)

(d) Similarly, dealers selling Trubyte teeth testified that Dentsply, in imposing Dealer Criterion 6 upon them, exerts too much control over the products they are able to sell. Harris Tr. 593-94 (“felt that it shouldn’t be up to someone else to tell you what you can sell and who you can sell it to”); Weinstock Tr. 156-57 (sold teeth to Frink, a competitor, at cost because Zahn did not want to condone Dentsply’s decision to terminate Frink for taking on the Ivoclar tooth line).

7. Dentsply's ability to sustain its market share for many years in the early 1990's, despite selling aesthetically inferior teeth at higher prices, further demonstrates its monopoly power.

a. In the early 1990's, Trubyte teeth were aesthetically inferior to competing tooth brands.

191. The Vita Classical Shade Guide is, by far, the most popular shade guide used by dentists in the United States. As Dentsply’s Chris Clark testified, “[t]he Vita shade system is the predominant shade system that dentists use for crown and bridge restorations. The Vita shade system is probably about 90 percent-plus of the crown and bridge restorations. The same dentists are also prescribing shades for removable prosthodontics or dentures as well.” Clark Tr. 2497. *See also* Whitehill Tr. 231-32 (80-90% of dentists use Vita Classical Shade Guide).

192. The Vita shade guide has been popular for a very long time. Miles Tr. 3498. Certainly by the early 1990's, it had become a very powerful force in the industry. Turner Tr. 414.

193.

In a survey of over 500 dentists

and labs, only three of Dentsply's 16 Bioform shades were acceptable matches to the Vita shade guide. DX 1572 at DS 022897. When Dentsply "asked laboratories and dentists how satisfied were they with the Bioform extended range cross-match, there was a fair degree of dissatisfaction with that cross-matching capability." Clark Tr. 2499-500. *See also* Armstrong Tr. 2377 (became interested in Vita teeth because was "having a dickens of a time" matching Dentsply's teeth with Vita shade guide).

194. Vita was not the only manufacturer that sold a Vita shaded tooth before Dentsply. In the early 1990's, Myerson was one of the first companies to introduce a line of teeth in Vita shades. Swartout Tr. 1293-94; Miles Tr. 3499-3501.

195. Apart from the shading issue, Dentsply was aware throughout the early 1990s that its premium teeth were rated below both Ivoclar's and Vita's in terms of their overall aesthetics.

(a) In surveys of dentists and labs, Dentsply's premium tooth lines were rated inferior to competing tooth brands. DX 1572 at DS 022897.

(b) Dentsply was receiving feedback that competing tooth brands were more natural-looking, that they had a more "wet look; if you could imagine [a] tooth in the mouth with saliva on it, compared to a dryer-looking tooth." Pohl Tr. 1922.

(c) In its 1993 Marketing Plan, the Trubyte Division noted that

196. The complaints that Dentsply was receiving related to important attributes of product quality. Dentsply's surveys showed that

GX 71 at DPLY-A 072620, that

and that

DX 1572 at DS 022896. *See also* Miles Tr. 3497 (shade is most important aspect of the aesthetics of a tooth).

b. Trubyte teeth were more expensive than aesthetically superior competitive brands.

197. Before the introduction of Portrait, labs that used Dentsply teeth to fill prescriptions for Vita shades did so with the Bioform IPN tooth. Turner Tr. 420.

198. The suggested lab price of Vita's premium teeth was 5 to 10 percent lower than the Bioform IPN teeth. Turner Tr. 421. Therefore, a lab that used a Bioform IPN tooth to fill a prescription for a Vita shade used a more expensive tooth that did not match the prescribed shade as well. Turner Tr. 421.

199.

c. Despite selling aesthetically inferior teeth at higher prices, Dentsply did not lose market share because it prevented dealers from taking on competing brands by enforcing its exclusive dealing agreements.

200. Despite the fact that Dentsply's teeth were a poor match to the Vita shade guide, and sold at higher prices, Dentsply was not losing significant market share during this period. Brennan Tr. 1755.

201. When receiving a prescription for Vita-shaded teeth, in 72% of the cases, labs were using Dentsply teeth instead. Brennan Tr. 1752-53; DX 1572 at DS 022896 ("72% of the time a competitive prescription becomes a Trubyte shade via lab controlled cross-matching").

202.

203.

Vita had approached three dealers (Pearson Dental, Atlanta Dental, and DLDS), each of which was in the top ten among dealers selling Trubyte teeth, to take on its tooth line. *Id.*; Clark Tr. 2645.

204. At the same time, these dealers were receiving requests from lab customers that wanted to buy Vita teeth from those dealers. Harris Tr. 599 (Atlanta Dental sought to add

Vita line due to customer demand); Vetrano Tr. 1423-24 (DLDS sought to add both Vita and Universal because of customer demand).

205. Dentsply consistently enforced Dealer Criterion 6 during this time period and, as a result, kept these dealers from taking on the Vita tooth line. Clark Tr. 2645 (“[w]e’ve consistently enforced it throughout, yes”); Pearson Tr. 1387 (did not add Vita due to Dentsply intervention); Harris Tr. 608-09 (did not add Vita because didn’t want “to jeopardize the amount of business that we did with Dentsply”); Vetrano Tr. 1426-27 (didn’t add Vita or Universal because of Dentsply).

206. During this same time period, Dentsply recognized both DTS and Darby Dental as Trubyte tooth dealers in exchange for their agreement to drop, or not add, competing teeth sold in Vita shades. GX 158 at DS 015783 (DTS recognized in exchange for its agreeing to drop both Vita and Ivoclar from several locations); GX 82 at DS 015663; Nordhauser Tr. 4119 (Darby recognized when it agreed not to add Vita, and to discontinue sales of Justi, Myerson, and Kenson teeth). Darby was also required to discontinue, within three months of Portrait’s introduction, the sale of Odipal teeth, a “higher priced quality” tooth in Vita shades made by a Spanish company. GX 82 at DS 015663. Darby had been interested in selling Odipal because of the demand for Vita-shaded teeth. Nordhauser Tr. 4141, 4123.

d. Dentsply was late in addressing this problem and, even today, may not have completely fixed it.

207. Dentsply launched its Portrait tooth in the Fall of 1995. Clark Tr. 2513.

208. Prior to that time, labs had been dissatisfied with the shading of Dentsply’s teeth for quite a while. Miles Tr. 3498. In an internal document concerning the need to

develop a Vita shaded tooth, Dentsply concluded that it was "late" in addressing the growth in Vita shade prescriptions. DX 1572 at DS 022897.

209. Dentsply was late in addressing this issue, in part, because it failed in its first attempt to fix it. In the early 1990's, Norman Weinstock of Zahn Dental advised Dentsply to introduce a new line of teeth in Vita shades. Mr. Weinstock testified to Dentsply's response:

At that time, they told me they were working on a new tooth and new materials, so that I would be happy with the results. But, regretfully, they came out with a line of teeth which was a TruBlend line of teeth that were in a different shade guide. And I told them I didn't think that they would be near as successful with those teeth and that material was in Vita shades. And a few years after that, they finally did introduce the Portrait line of teeth, which has proven in Vita shades to be a very successful venture for both them and ourselves.

Weinstock Tr. 99. Had Dentsply responded to Mr. Weinstock's concerns initially, "we could have skipped a few years [and] that would have helped both companies." *Id*; see also

Weinstock Tr. 527 (felt "very strongly," and for a long time, that Dentsply should have a tooth in Vita shades).

210. The TruBlend line of teeth were introduced at about the same time Chris Clark joined Dentsply in September 1992. Clark Tr. 2488. This corroborates Mr. Weinstock's testimony that Dentsply did not respond to the concerns raised by him and others "for a few years." Weinstock Tr. 99.

211. Even today, some in the industry believe that Dentsply's Portrait teeth do not completely match the Vita Classical Shade Guide. Vident has conducted a comparison with an electronic shade taking device called a spectrophotometer, and the results demonstrated that most of the shades of the Portrait teeth did not match the Vita Classical Shade Guide.

Whitehill Tr. 235-36. According to Judd Ryan of the Sonshine Dental Lab, the Portrait shades are "not an exact match" to the Vita shade guide. Ryan Tr. 1219, 1251.

8. Dentsply's exclusive dealing agreements constitute significant barriers to entry and expansion.

212. Dentsply's exclusionary policies have deterred entry by new firms and expansion by firms already in the market. Reitman Tr. 1535.

Firms such as Vita and Ivoclar, that have sold teeth in the United States market for 20 or more years, have been unsuccessful in increasing their market share above the mid-single digits. Some firms have been excluded from the market entirely as a direct result of Dentsply's actions, some have delayed their entry, and others have entered but have been unsuccessful because of their inability to obtain adequate dealer distribution. Reitman Tr. 1535-37.

a. Dentsply's exclusionary policies have been a significant barrier to expansion by firms already in the market.

213. Dentsply's primary competitors, Vita and Ivoclar, have competed in the U.S. market since the 1970's. Whitehill Tr. 223; Ganley Tr. 983. Myerson has competed since its founding in 1917. Swartout Tr. 1293. As noted above, despite their substantial efforts to overcome the disadvantages of selling teeth directly, each of these competitors has failed to expand their tooth business due to their lack of a dealer network. *See* PFF ¶ 153, *et. seq.*

b. Dentsply's exclusionary policies have prevented and delayed entry by new firms.

214. Dentsply's exclusive dealing agreements have completely excluded at least two tooth brands, Odipal and Ortholux, both made by the Spanish firm Unidesa, from the United States tooth market.

(a) When Dentsply recognized Darby Dental as a tooth dealer in 1994, it required Darby to discontinue its plans for selling Odipal teeth. GX 82; Nordhauser Tr. 4132. Odipal was a line of higher-priced, higher-quality teeth sold in Vita shades. As Mr. Nordhauser of Darby testified, "this company in Spain made the Odipal line with the Vita shades and that would have fit in perfectly with our company, but we told them that we wouldn't -- the negotiation was we had to give that up, and we gave that up." Nordhauser Tr. 4122. Darby had placed its initial order for 100,000 sets of teeth and expected its sales of Odipal teeth to generate "at least a million dollars" per year (Nordhauser Tr. 4141), but as a result of its agreement with Dentsply, Darby canceled its initial order and "just never even sold them." Nordhauser Tr. 4123, 4135. Even today, Odipal teeth are not sold in the United States market: "Not in America. They sell all over the world, okay, but not in this country." Nordhauser Tr. 4123.

(b) At the same time, Dentsply also required Darby to drop the Ortholux line. The Ortholux line was a "big thing" for Darby, "because we were selling an awful lot of Ortholux teeth and we had that exclusively in the United States, so that was really a big give-up for us." Nordhauser Tr. 4121. Ortholux teeth are made by Unidesa in Spain, the same company that makes Odipal. When Darby discontinued Ortholux, its annual sales of that brand were at least \$500,000. Nordhauser Tr. 4140-41. Darby sold some of its leftovers to a small dealer, but "he wasn't able to follow up, and those lines pretty much disappeared."

Nordhauser Tr. 4124. The Ortholux teeth "are gone" from the U.S. market, even though they sold in other parts of the world. Nordhauser Tr. 4124.

215. Dentsply's exclusionary policies delayed the entry of Heraeus Kulzer into the United States tooth market. During the 1990's, Heraeus considered entering the market at various times but did not because of the dealer restrictions imposed by Dentsply. Reitman Tr. 1536.

c. Dentsply's exclusionary policies have significantly limited the success of those firms that have entered the market.

216. To rebut a finding of monopoly power, it is not enough for Dentsply to show that some firms have decided to start selling teeth in the United States. Even Dentsply's own expert, Professor Marvel, conceded that much. Marvel Tr. 3724-25 (fact that firms have entered does not mean monopoly power has been eroded). Firms can sell teeth profitably on the fringe of the market, under Dentsply's high price umbrella, without eroding Dentsply's market power. Marvel Tr. 3722-25. Therefore, a new firm does not have to achieve large sales in order to be profitable in the tooth market